a W. R. C. Smith publication

FIFTY CENTS

Textile Industries

Formerly "COTTON"

AUGUST, 1956

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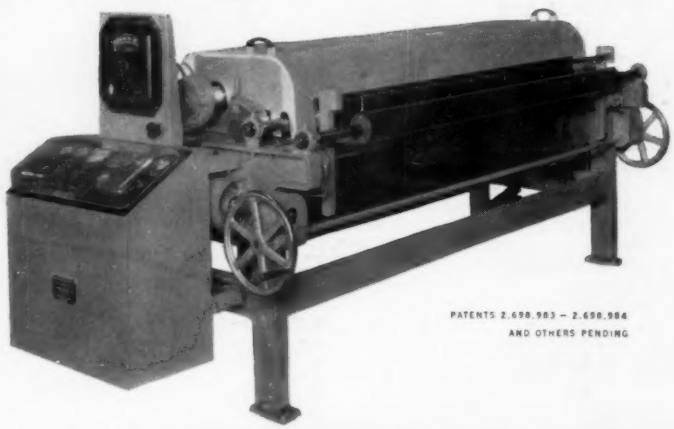

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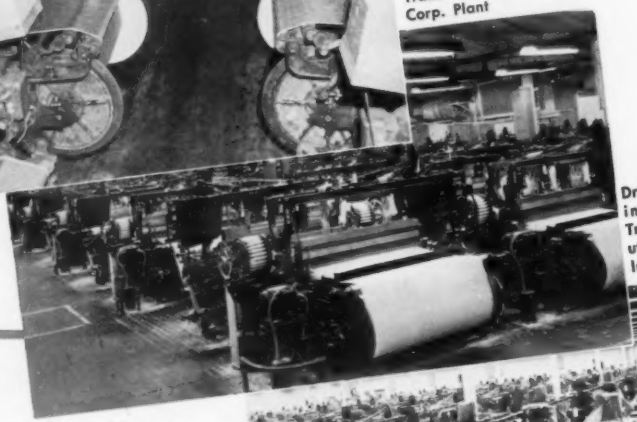

Draper X2 looms operating with Diehl Power Transmitters in Cone Mills Corp. Plant

Draper XD looms operating with Diehl Power Transmitters at Bibb Manufacturing Company, Columbus, Georgia.

Draper XD looms operating with Diehl Power Transmitters at the Lyons Plant, Synthetic Division, M. Lowenstein and Sons.

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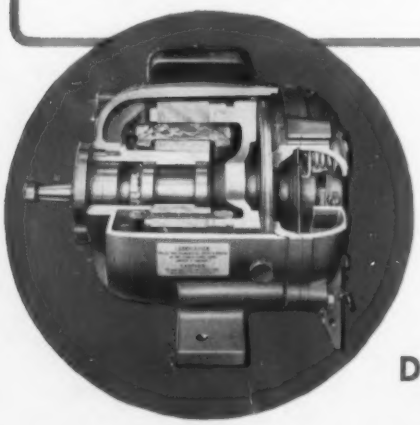

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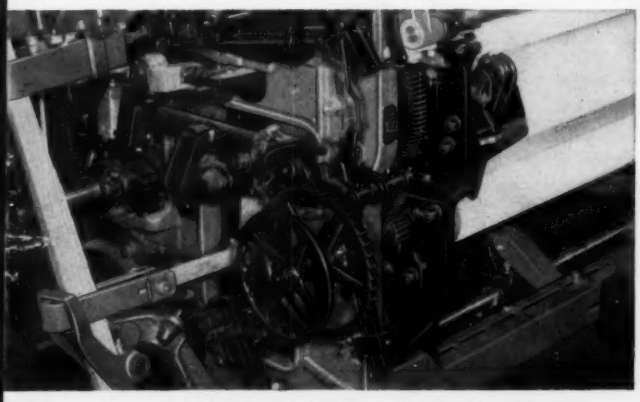

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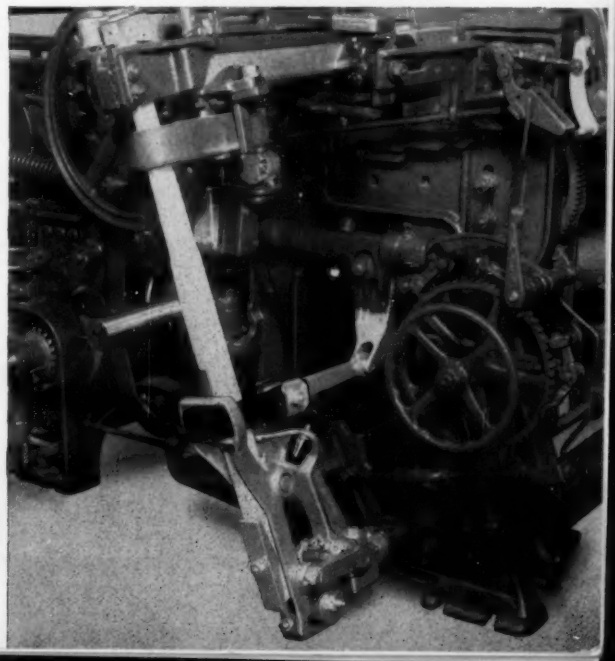

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FOR THE TEXTILE INDUSTRY

NBP BPA

Textile Industries

Formerly "COTTON"

Vol. 120, No. 8
August, 1956

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Shorts and Remnants

By J. C. C.

► Here it is August. All in favor of a picnic raise your right hand, get out the picnic basket, cold fried chicken, potato salad, pickles, pie, cake, sandwiches, or whatever you like. Head the old jalopy out to a nice sandy spot, for there's nothing like sand on cold fried chicken.

Maybe you won't be able to find any ants or mosquitos, so gather an ant hill or two to take along, for ants go with picnics like fleas with a dog. Wear some good clothes, though, for watermelon stains won't show so good on your old ones.

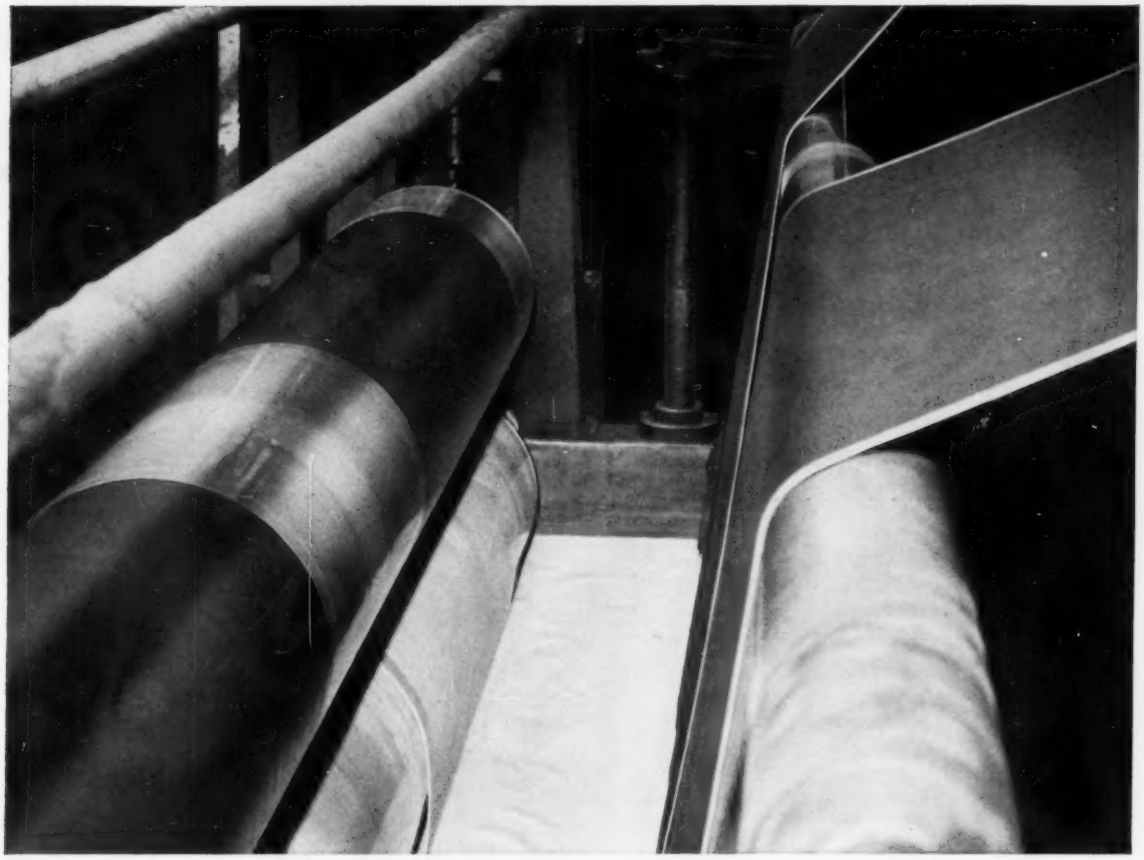
On second thought, let's stay home on the back porch in front of the fan and watch the ball game on television with a glass of ice cold lemonade or a cold beer.

► Speaking of beverages, a feature speaker at the recent National Association of Hosiery Manufacturers Convention told of a game called "Blackout" which he ran into in Birmingham. Seems there are three players in the game, each with a fifth of whisky. They lock themselves in a room, and each drinks his fifth. Then one sneaks out of the room. The idea of the game is the other two try to figure out which one left the room.

► The same speaker has as a theme "Are We Easy To Do Business With?" We hope TI is. If you have any complaints, send them along.

► As we said at the start, it's August and, for most of our readers, hot. So, with the compliments of Studebaker, we bring you the coolest job of the summer—Maryanne Davis.

Seems she wandered into the cold room at this company's research



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The new Cutler-Hammer Unitrol cuts costs from the moment it is delivered. It can save days, often weeks, in the time required for the installation of motor control. The high cost of mounting and wiring individual starters is eliminated. Earlier use of the production facilities brings a speedier return on the investment. Unitrol often effects vital savings in floor space, sometimes avoids the need for costly plant construction.

In performance, nothing can compare with the new Unitrol. Feature after feature of the astounding new Three-Star Control saves time and expense. Superlife vertical contacts *never* require maintenance care in all normal use. Adjustable overload relay coils let motors work harder safely, save the expense of both damaged motors and needless production interruptions. Full three-phase protection such as able engineers now demand is offered by three-coil overload relays.

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UNITROL

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Unitrol plug-in feature disconnects control from power when unit is moved to test position, reconnects without misalignment when unit returns to operating position. Control panel is *always* vertical. Plug-in design permits back-to-back assemblies without staggering control units. Units are removed by merely disconnecting load and control wiring at terminal boards. This wiring is cabled, marked and color coded.

Unitrol provides either circuit breakers or fused disconnect switches of advanced design. Both have three-position, self-aligning operators arranged for padlocking with as many as three locks in the "off" position. Recessed pushbuttons and concealed door hinges are typical features that add to safety and fine appearance.

The name UNITROL is a Cutler-Hammer trade mark

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Shorts and Remnants

laboratory in South Bend, Ind.

Seems sort of silly to send that release to TI, when so few of our readers live in Alaska, but you never know what these publicity folks will send out.

► Nearer to textiles is the news item from Strong-Wear Co., Baltimore, Md., "one of the 10 largest producers of men's wear in the country." It says that Max Rubin is not only Pres. of said concern but Poet Laureate of Baltimore. "Poetry," he says, "gives you peace of mind, puts you in a pleasant mood. . . . " His favorite themes are honesty, democracy, brotherhood, and righteousness in business. Four sample poems were attached, one of which is reproduced below:

RAIN

Another rain today is falling
And the river crest is high;
Our spirit is melancholy—
From the heart comes forth a sigh.

Rains have come and rains have fallen,
And our hearts were filled with grief;
Yet, the sun has never failed us—
Always brought us glad relief.

It's only fair we take notice
That our grief is oft' in vain.
If we truly count our blessings,
We have more sunshine than rain.

We have a little poem ourselves entitled "Reflections on Arm in a Sling." It goes:

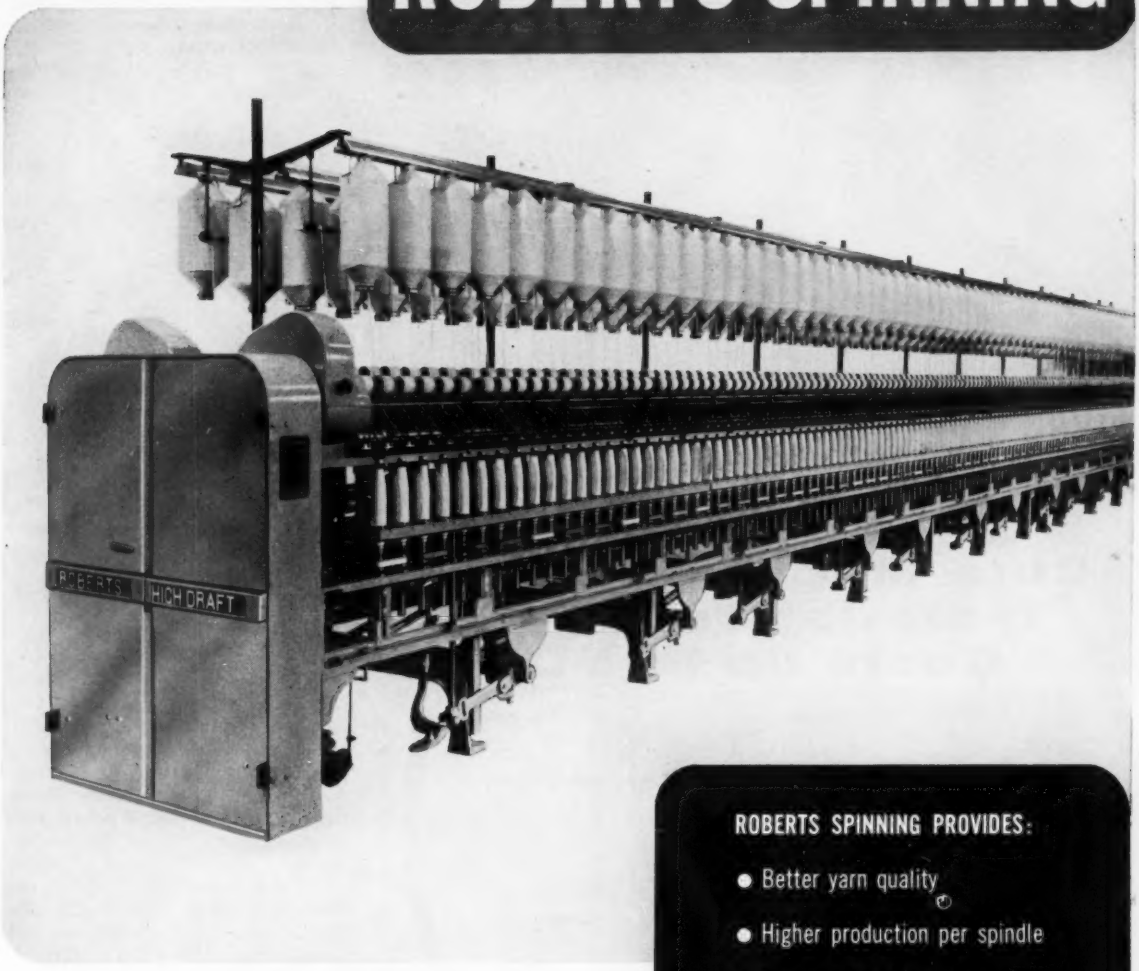
At fifty-two
Man isn't built
To teach the young'un
To walk on a stilt.

► This here is the Anniversary Column, so orchids to Tyer Rubber Co., a TI Advertiser celebrating its 100th Anniversary this year. Home office and plant at Andover, Mass., are pictured below. The company

makes footwear and molded rubber products as well as rubber covered rolls for textiles and other industries.

► June marked an anniversary and a landmark also for **A. K. Landau**, Dir. of Sales Research, Saco-Lowell Shops, Boston, Mass., when "Fritz" joined nine other alumni of Tulane

ROBERTS SPINNING



ROBERTS SPINNING PROVIDES:

- Better yarn quality
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- Increased package sizes
- Lower maintenance expense
- Lowest first cost

COMPARE ALL 3

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ROBERTS COMPANY

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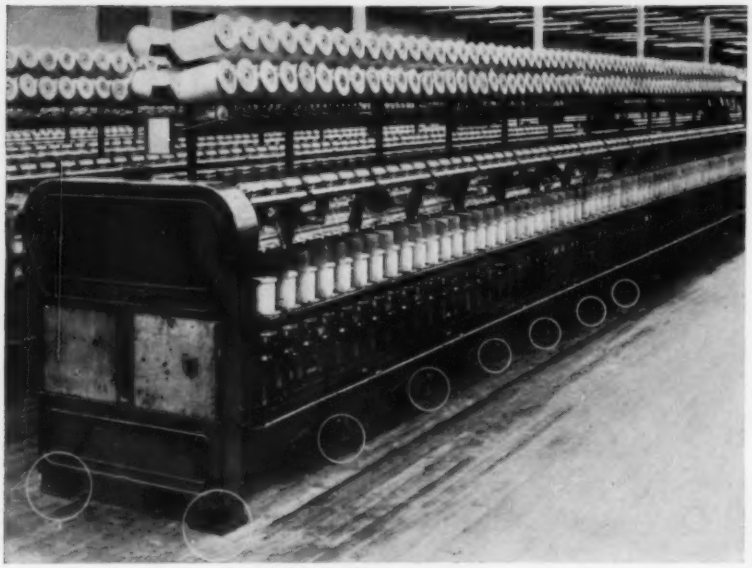

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All this plus the ability of Unisorb to reduce transmitted vibration by as much as 85%!

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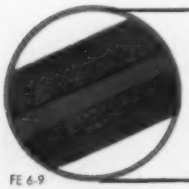

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Shorts and Remnants

University, New Orleans, for their 50th reunion. In 1910 Fritz left Lane Cotton Mills to go to work for Saco-Lowell's southern agent, A. H. Washburn. In 1914 he left Saco-Lowell to operate his own mill in McComb, Miss., and returned to the company in 1930 where he has since then served continuously.

Mr. Landau

► Speaking of students and graduates, "Hasty" (using a Wachovia Bank & Trust Co., Salisbury, N. C., envelope) apparently disagrees with the statement in our June issue by Dean George Griffin of Georgia Tech. "Low Salaries Offered Graduates by Mills Given as One Reason for Dwindling Interest in Textile Courses" was the heading under which it appeared. Said "Hasty" enclosed a clipping from N. C. State College Alumni Bulletin entitled "Textile Field Offers Top Opportunities to Students."

► Fellow in Washington says Jap textile competition is grossly exaggerated and that at most less than 2½% of U.S.A. textile consumption is Jap export. Could be. He has figures to prove it, but that 2½% might be pretty high in certain categories.

Lots of textile folks aren't concerned until the Japs hit on their products. Fulton Lewis, Jr., recently warned hosiery manufacturers that it might hit them next. Seems the Japs figure out a cloth or product and specialize on it without playing the field. Mr. Lewis also said that GATT reciprocal trade agreements were supposed to be concessions on both sides.

We know what the U.S.A. conceded in tariff reductions, but did you know that Japanese concessions

Who said that business "Died in the Wool?" fact is, there's...

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And this is *good* news to mills that stand protected with C&K's W3 or W3A Woolen Looms equipped with the exclusive SELECT-A-PIC feature. They're ready for whatever the demands of fashion may bring . . . ready for *full automatic weaving* on many woolen and worsted fabrics that *can't* be woven automatically on any other equipment.

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Crompton & Knowles of Canada Limited, Montreal, Quebec

Why is the NEW Bahnson OPEN AIRE CREEL superior?

It's the only open creel constructed of heavy stamped steel with a baked enamel finish!

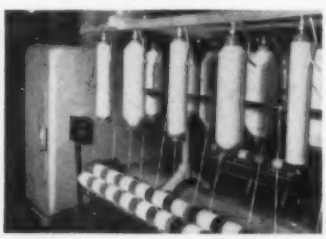
1 **Maximum strength:** Deep drawn steel crossarms are notched to give stronger lateral support and to conceal runner clips. Extruded aluminum runners are furnished as optional, but most mills prefer the smaller and stronger baked enamel steel runners.

2 **Cleanest surfaces:** Baked enamel steel surfaces provide a smoother, more durable finish than cast or extruded aluminum and also eliminate etching and corrosion, and minimize lint accumulation.

Plus this added feature:

3 **Dynamic colors:** Make your frame and spinning room more attractive with a choice of specially color-finished creels at no additional cost.

Bahnson P.M.* Plan



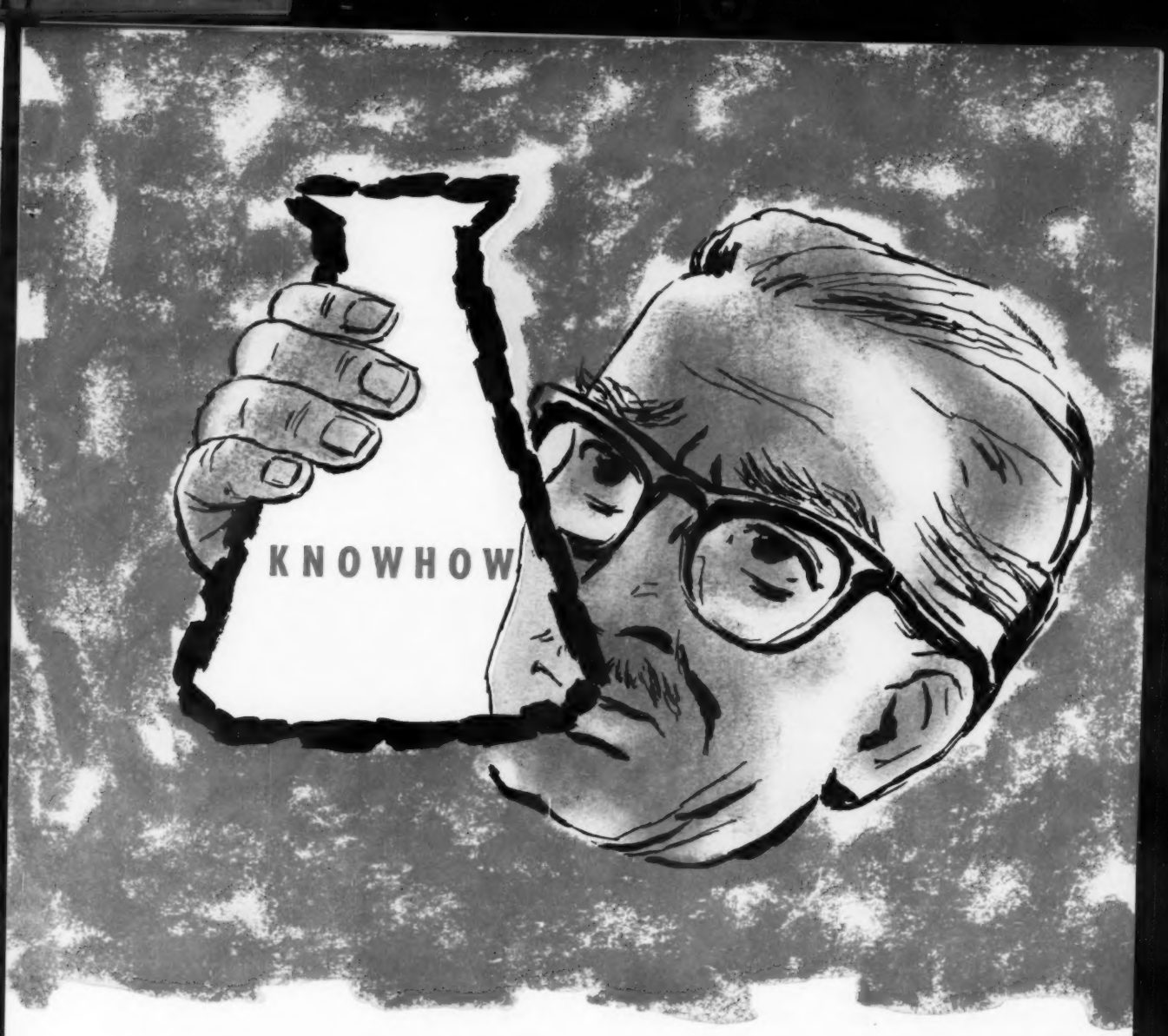
***Packaged Modernization**

A complete plan for plant modernization with new equipment for vacuum collection, cleaning, creels, and air conditioning. Originated by Bahnson to give you co-ordinated engineering, group installation, one-source service and individual responsibility in one package buy. Result: maximum production and superior quality plus dollar savings!

Whether for single units or complete installations, write Bahnson for full information on how its P.M. Plan can help you. Bahnson representatives will be happy to discuss and study your needs.

Bahnson COMPANY
WINSTON-SALEM, N. C.

AIR CONDITIONING • CLEANING
VACUUM COLLECTION



Knowhow is the extra, unseen ingredient that often makes the difference between dyes with lasting color beauty and fugitive dyes that infuriate customers and ruin profits.

That's why leading textile manufacturers DEPEND on

ALTHOUSE DYES PLUS
ALTHOUSE SPECIAL DYEING TECHNIQUES

to make sure of fabrics with the Enduring Color Beauty that's essential to keep customers happy, profits up.

For three generations Althouse special KNOWHOW has been achieving higher and higher standards of color fastness. When you are dyeing cottons, rayons and most blends, it will pay you to get the benefit of Althouse special dyeing techniques by specifying these exclusive Althouse dye specialties:

Superlitefasts	Nylanthrenes	Azoanthrenes
Nydyes	Supernylites	Sol-Aqua-Fast

Althouse research teams welcome your tough problems — help you work out special dyeing techniques that give your customers the extra color values that make profits zoom.

ALTHOUSE

Your key to lasting color beauty

ALTHOUSE CHEMICAL COMPANY, • READING, PA.

DIVISION OF CROMPTON & KNOWLES CORPORATION

THE TEXTILE INDUSTRY *Banks on* BIJUR AUTOMATIC LUBRICATION

In hundreds of mills Bijur Automatic Lubrication is paying big dividends in increased production and lower operating costs.

With Bijur, a machine oils itself —while running. You profit from increased production on every machine. There are no stops for oiling and bearing failures are virtually eliminated.

When your machines are Bijur-equipped, even the most inaccessible bearings get the right amount of filtered oil at the right time.

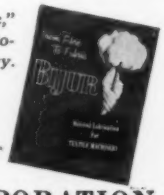
Your operating costs are cut: oil spots on work are eliminated, personnel injuries are avoided, fire risk is reduced, oil consumption is cut greatly by accurate metering, and you enjoy better housekeeping.

Leading textile mills are banking on Bijur Automatic Lubrication. Let us show you how we can help you do the same.

0-5

2565

Colorful, new bulletin, "From Fibre to Fabric," shows the practical benefits that Bijur Automatic Lubrication offers to the Textile Industry. Write for your copy.



BIJUR LUBRICATING CORPORATION
Rochelle Park, New Jersey
Pioneers in Automatic Lubrication

Shorts and Remnants

included lubricating oils and tallow which they don't produce, raw cotton so they can get cheap cotton to compete with the U.S.A., cottonseed oil and tomato paste so they can undersell U.S.A. tuna canners, and four-engined airplanes. Sounds a little one-sided.

► TI's second Tufted Textiles issue [June '56] has already produced several favorable comments and many reprint requests. Here are a few:

" . . . We saw our first copy when we were at the Tufted Textile Manufacturer's Meeting in Miami. There were quite a number of copies there and it was very well received. . . . "

H. L. SAIN
Vice-President
Hazlehurst Mills
Hazlehurst, Ga.

" . . . I want to congratulate you on the splendid job you did on this article. . . . "

E. F. DEACON
Sales Manager
Vol T. Blacknall Co.
Atlanta, Ga.

" . . . would greatly appreciate it if you would send me six (6) copies of this special section."

WILLIAM E. JENNINGS
National Aniline Div.
Hopewell, Va.

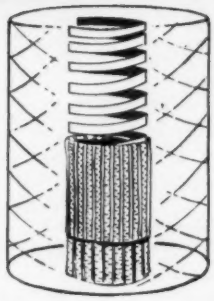
All is not a bed of roses in the tufted industry though, as the following comment indicates:

"We have been forced out of business by cheap competition, raise in minimum wage, cancellation of tariff and higher taxes. Isn't it about time this nation woke up and quit trying to nurse the rest of the world? From having been one of the real chenille companies in Dalton (making bedspreads, wholesaling for from $6.00 to $30.00) we are now trying to market a specialty (see enclosed) that wholesales for 25¢. . . . "

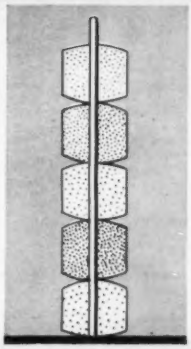
F. M. WILCOX
President
Wilcox Chenille, Inc.
Dalton, Ga.

Mr. Wilcox sent a sample of a tufted broom cover for storing brooms when not in use. Any ideas for marketing

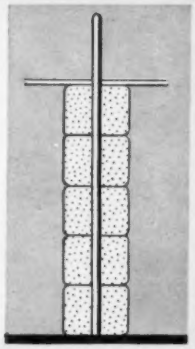
A Message to the Tufted Textiles Industry



X-ray view of Franklin Package showing compressible spring



(Left) Franklin Packages before compression — Note variation in density



(Right) Franklin Packages after compression — Note uniform density

IS YOUR YARN JUST "PACKAGE DYED"?

OR IS IT Franklin Process Dyed?

1. **VARIATION IN DENSITY** — When winding dye packages on a commercial basis, density is bound to vary from one package to another.
2. **VARIATION IN SHADE** — These variations in density will cause variations in shade.
3. **EQUALIZED DENSITY** — Franklin Process Compressible Package Dyeing is the only package dyeing method whereby density of all packages in a machine can be equalized (see diagram).
4. **UNIFORM SHADE** — Exceptional uniformity of shade in Franklin Process dye batches is a logical result.
5. **UP TO 33,000 LBS.** of ply yarn is one perfectly blended shade, put up on jumbo cones, if desired.
6. **MAN-MADE FIBRES** — We dye spun rayon (for tweed carpeting), as well as cotton and worsted.

Order Franklin Process Colored Yarns. Get the best in dyeing, a yarn that meets your specifications and service that is "conveniently yours" from any one or all of 5 dye plants.

Franklin Process

Yarn Merchants and Largest Package Dyers in the World — Dyeing Exclusively on the Franklin Spring

PROVIDENCE • PHILADELPHIA • GREENVILLE • CHATTANOOGA • FINGERVILLE, S. C.
New York Representative — 40 Worth Street

How to select the right liquid meters

. . . to save time and ingredients, with closer quality control, and more accurate cost accounting. That's the subject of this helpful free bulletin. It covers meters for measuring hot and cold water, oils, syrups, brines, soap solutions, and many other chemical solutions that can be handled by composition bronze meters. Illustrates sizes from ⅝" to 6", with rates of flow to 1000 gpm. Registers range from simple counters to the newest Auto-Stop automatic batching meters. A gold mine of information for any processing engineer. Bulletin 566UTI.

Acetate, Amyl
Acetate, Butyl
Acetate, Ethyl
Acetate, Lead
Acetone
Alcohol, Amyl
Alcohol, Ethyl
Alcohol, Methyl
Ammonium Nitrate Solution
Ammonium Sulfate Solution
Asphalt, Liquid
Banana Oil
Barium Chloride
Benzol
Boiled Oil
Borax Solution
Brine
Bronzing Liquid
Bunker "C"
Butanol
Calcium Chloride Brine
Carbon Bisulphide
Carbon Tetrachloride
Castor Oil
Cellulose Solvent
China Wood Oil
Chloropicrin
Chocolate
Cleaner, Asphalt Tile
Cocoa Butter
Coconut Oil
Code Rubber Oil
Coffee
Condensate
Corn Molasses
Corn Syrup
Cotton Seed Oil
Crude Oil
DDT
Dextrine Solution
Diacetone
Dibutyl Phthalate
Diethyl Carbitol
Diethylene Glycol
Diethyl Hexyl Phthalate
Dimethyl Phthalate
Dioctyl Phthalate
Dope (Nitrocellulose)
Esther Gum Oil, Drying
Ethyl Cellosolve
Ethylene Glycol
Fish Oil
Formaldehyde
Freon
Fuel Oil, Hot
Glucose
Glue, Water Solution
Glycerine
Grease
Ink, Oil Vehicle
Ink, Water Vehicle
Isobutylene
Isopropanol (Isopropyl Alcohol)
Kerosene
Lacquer
Lime Water
Linseed Oil
Liquid Soap
Liquid Sugar
Lubricating Oil, Hot
Lubricating Oil
Mesityl Oxide
Methylated Spirits
Methyl Bromide
Methyl Cellosolve
Methyl Formate
Methyline Chloride
Mineral Oil
Mineral Spirits
Molasses
Monochlorbenzoil
Naphtha
Nitrocellulose Lacquer
Oleic Acid
Oleum Spirits
Orthodichloro Benzine
Paint
Paraffin Oil
Paste
Perfume
Petrolatum
Pine Oil
Plasticizer
Polymer, Molten
Potassium Carbonate
Propylene Glycol
Pyrethrum Mixtures
Rum
Shellac, Alcohol Sol.
Silicone Oil
Silicon Tetrachloride
Size Solution
Soap Solution
Sodium Benzoate
Sodium Carbonate
Sodium Chloride
Sodium Silicate
Soy Bean Oil
Starch Solution
Stearic Acid
Stoddard Solvent
Styrene Monomer
Sugar Syrups
Tallow
Tannic Acid
Tire Compound
Trichlorethylene
Tricresyl Phosphate
Tungwood Oil
Turpentine
Varnish
Varsol
Vinyl Lacquer
Water
Wax Emulsions
Whiskey
Wine
Xylol

148 INDUSTRIAL LIQUIDS ARE LISTED . . . How many of these can you handle better with Neptune Meters?

Get started now! Write or phone nearest Neptune office, or check off the Reader Service Card in this publication.

NEPTUNE METER COMPANY
19 West 50th Street, New York 20, N. Y.

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neptune liquid METERS

Shorts and Remnants

this? Write to Mr. Wilcox.

► Looks as if U. S. Dept. of Commerce pulled a boo-boo. We have a release saying "Southern Knight Underwear, Nightwear Production Exceeding 1955." Now, the Southern Knights of KKK used nightwear, but we didn't know Knights wore any underwear, North or South.

► Textiles for 1955 looked good in net income after taxes, showing a 66% gain over 1954—the second highest gain in all U.S.A. industry. So how about 1956?

► But **Arno H. Johnson,** of J. Walter Thompson Co., New York, N. Y., is looking further ahead. Speaking to the American Cotton Manufacturers Institute he said "Based on the shifts in family income that will take place in an expanding economy, plus the population growth by 1965, the potential market for cotton consumption in apparel and home furnishings can be 75% greater than the annual consumption in 1955."

Now 75% more in 10 years is a pretty good figure. If you read TI, and if suppliers to the industry advertise in TI to keep you posted on the improvements in machinery, equipment, and supplies, you may make it. We surely hope so. P.S. Does this mean that there will be 75% more advertising in TI? Would be mighty nice, you know.

► **Harry J. Delaney,** V.P. of the factoring firm known as John P. Maguire & Co. (good TI advertiser), was recently elected to the National Executive Committee of the Boy Scouts of America. We believe that

rates an orchid for Mr. Delaney and his picture in S&R.

► Readers keep asking for more

if you need new pickers —

The Aldrich Single Process Picker is the most modern picker—more anti-friction bearings; more cut gears; more steel gears; more sensitive evener; more chain drives; more valuable improvements than any other picker.

if you have old pickers and they need rebuilding —

Every Aldrich improvement can be put right on your old frames, or some like them that will be furnished in exchange.

if you have old pickers in fairly good condition —

A new Aldrich calender, and a new Aldrich evener will make practically a new picker out of the old one.

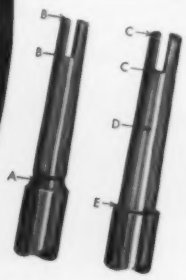
AldricH MachinE WorkS

Greenwood, South Carolina

2 new products to improve machine performance

New Lifting Rods won't hang or warp

These Ideal Lifting Rods have a "super-slick" polish which prevents sticking in bushings. Will solve your sticking and shaking problems and outlast other lifting rods. Plain or induction hardened, with machined or new type ground tops — held to tolerances of ± .001". New bushings, shoes, and reamers furnished if desired.



New Type Roving Spindles

Prevent collection of fibres
Fit barrel hubs perfectly
Last longer

New type shoulder, case hardening, and rounded corners and slots are a great improvement over conventional roving spindles, and pay dividends in better work and longer service. This new design top can also be had on reworked spindles, with tops hardened to withstand wear.

Write for further information and prices on these and other Ideal lines.

Flyer Reconditioning Service — **Top Roll Reconditioning**
Flyer Tune-up Service — **New and Reworked Pressers**

Ideal Machine Shops, Inc., Bessemer City, N. C.

Continuous Service to Textile Mills Since 1925

Shorts and Remnants

information on equipment and supplies, some on the yellow cards and some by letter or phone. Keep the inquiries coming. We like it. If you don't see what you want, ask us for it anyway. We'll help you find a source.

L. H. Whitener, Supt., A. M. Smyre Mfg. Co., Gastonia, N. C., writes for samples of a cotton lubricant from Universal Fiber Treatments, Inc., Macon, Ga. **R. M. Timmerman,** Rockford Textile Mills, Inc., McMinnville, Tenn., says the latex dispenser for tufting yarns in Glenn E. Looper ad [June '56] should be good for splicing yarn ends for woolen hosiery and wants more data. **J. Marx,** Marx Sales Co., Detroit, Mich., wants a garnett and picker for shoddy. **Ed Ball,** Watson & Desmond, Charlotte, N. C., wants more data on device for putting on and removing travelers [Dec. '54].

"Training Seamer Operators"

"Would it be possible for me to have 3 copies of . . . 'Training Seamer Operators' [Apr. '53] . . . "

MARGARET W. McCRON
Willcraft Hosiery
Williamsport, Md.

Dyeing Acrilan Sweaters

"We would appreciate having tear sheets or copy of the article entitled 'Hints for Dyeing and Finishing Acrilan Sweaters' [Jan. '56] . . . "

A. J. KELLY
Burkart-Schier Chemical Co.
Chattanooga, Tenn.

"Waste Reduction and Control"

"Could we purchase a quantity of 50 or 100 reprints of 'Waste Reduction and Control' [Oct. '48] . . . "

PHILLIP D. RAY
The Springs Cotton Mills
Fort Mill, S. C.

Filling Winder Costs

"We have read with great interest the article 'William Skinner's Filling Winding Costs Went Down with Installation of this Machine' [May '56] . . . "

GIOVANNI FIORE
P. Fiore Andrea
Torino, Italy

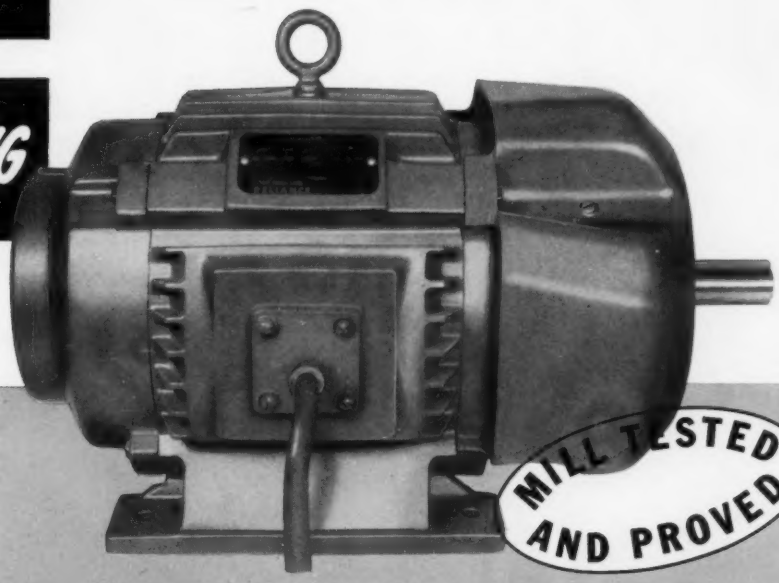
"Our European representative, Mr. H. L. Muschamp, is desirous of receiving a copy (tear sheet) of the article entitled 'William Skinner's

NO MORE MOTOR CLEANING

The *new* Reliance Lint-Proof Textile Motor is totally enclosed, positively eliminating lint-clogging. Lint-filled air cannot penetrate the sealed motor housing, and the high velocity cooling fan blasts lint off the outside of the motor.

It will pay you to try these new textile motors and see how they cut operating costs by eliminating motor cleaning.

Now available—1-20 hp. general purpose, air-cooled textile motor for application on spinning, roving, drawing, and twisting frames . . . and on cards, openers, pickers, and other textile machines. B-1508



MILL TESTED AND PROVED

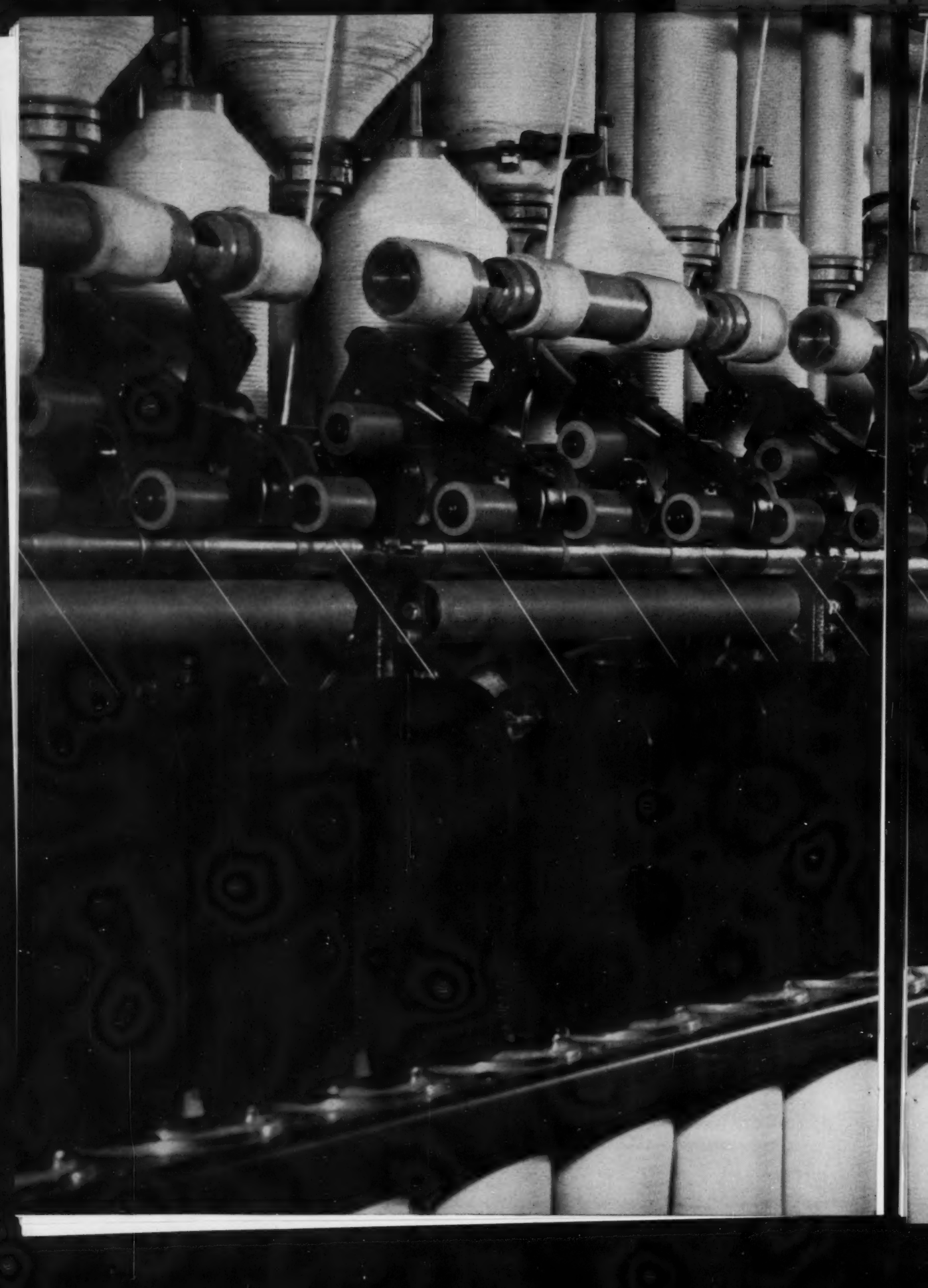
IT'S LINT-PROOF

RELIANCE Totally-Protected MOTORS

RELIANCE ELECTRIC AND ENGINEERING CO.

Cleveland 10, Ohio • Offices in Principal Cities

Canadian Division: Welland, Ontario



Not a lap-up in sight!

THIS MILL USES ARMSTRONG J-490 ACCOTEX® COTS . . . WITH BUILT-IN LAP RESISTANCE

No matter what you're spinning—natural fibers, synthetics, or blends—you'll get far fewer lap-ups with Armstrong J-490 Accotex Cots on your frames.

That's because lap resistance is actually built right into the J-490's. These cots are made of a patented synthetic rubber compound that eliminates the normal electrical attraction between cot and fiber. In fact, the J-490 compound actually tends to repel broken ends.

The J-490 compound is specially made to provide a smooth, clean-running surface. It has no rough fillers to pull short fibers from stock and cause excessive ends down.

Armstrong J-490 Cots are durable, too. They're made of exceptionally long-wearing synthetic rubber—and all that's needed to keep them running like new for years is an occasional re-buffing. Your Armstrong representative will be glad to help you set up a test side of the J-490's. Ask him about it next time he calls.

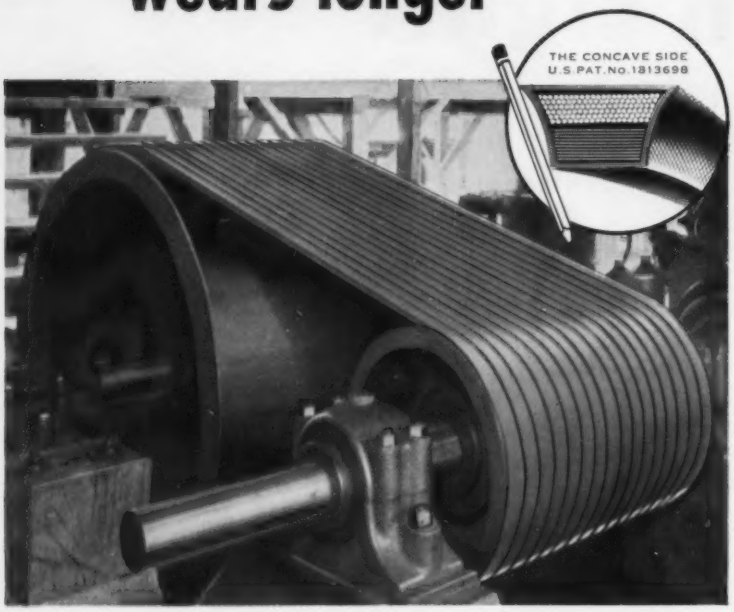
For more information about J-490 and other Armstrong textile supplies, send for "Armstrong Textile Roll Coverings and Mill Supplies." Write to Armstrong Cork Company, Industrial Division, 6508 Ivy Street, Lancaster, Pennsylvania.

P. S. If eyebrowing is a problem in your spinning room, try the Armstrong NO-742-S Cot. Its "constant-friction" surface packs waste well back under the clearers—stops eyebrows from forming. With normal picking schedules, you'll seldom see an eyebrow on frames equipped with NO-742-S Cots.

Armstrong ACCOTEX COTS

. . . used wherever performance counts

Why a V-Belt with CONCAVE SIDES wears longer



It is easy to demonstrate to yourself why the concave sides (Fig. 1) of the Gates belt greatly lengthen belt life.

Simply bend a Gates belt and feel the sides. Notice how these precisely engineered concave sides *fill out* on the bend and *become straight*. Thus a Gates belt grips the sheave groove evenly (Fig. 1-A) and wear is distributed uniformly across each side of the belt. That means longer belt life; lower costs.

Make the same test with a straight-sided belt (Fig. 2) and see what happens. The sides bulge out on the bend (Fig. 2-A) concentrating the wear at points shown by arrows.

To assure longer wear and keep belt costs down, specify the V-belt with Concave sides—Gates Vulco Rope . . . readily available from nearby distributor stocks. The Gates Rubber Company, Denver, Colorado—*World's Largest Maker of V-Belts.*

There are Gates Engineering Offices and Distributor Stocks in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.

TPA 90

Gates VULCO ROPE Drives

Shorts and Remnants

Filling Winding Costs Went Down With Installation of this Machine' . . "

P. H. FARMER
Foster Machine Co.
Westfield, Mass.

Non-Woven Fabrics

"Can you supply us with a listing of non-woven fabric manufacturers? . . . "

W. A. MILLER
International Latex Corp.
Dover, Del.

► That's a $64,000 question. We sent on 14 or so known non-woven firms. Anyone want to write Mr. Miller on this? We also suggested he write Textile Div., Curlator Corp., E. Rochester, N. Y., a TI advertiser and maker of machinery for producing non-woven fabrics.

Thrill In Small Textile Business

" . . . My only hope is that the textile industry does not end up like the automobile industry with three or four giants. I think there is a certain thrill in small business. I believe the employees are a little more interested in their work, and that there is a definite group feeling of accomplishment at the end of a good season, a feeling which is not found in larger corporations."

WILLIAM D. DUNBAR
Vice-President
Dorset Woolen Co.
Slocum, R. I.

► Mr. Dunbar, a lot of folks are still doing a fine textile business in smaller plants; and with all the mergers which have been effected no one company yet has a very large percentage of the industry sales today.

Biggest textile firm in the world, we believe, is Burlington Industries, Greensboro, N. C. We counted 99 plants in 81 cities in a recent attractive folder entitled "Swifter Than the Weaver's Shuttle — The Story of Burlington Industries." That's Big Business in any language, but they use the same spindles, looms, knitting machines, and equipment as anyone else.

Reminds ole S&R of the song about "It Ain't What You Got, It's What You Do With It."

► Adios and look for our bigger and better Wet Processing section in September, celebrating the Perkin Centennial.

More CARBON BISULFIDE!

Stauffer's new plant at Le Moyne, Alabama, is now producing carbon bisulfide from natural gas and sulfur.

The location in an area of enormous gas reserves provides a supply of raw materials which will tend to eliminate the instability and price fluctuations of the wood charcoal market.

The huge capacity of the new plant will assure continuance of the service for which Stauffer has long been known in the Rayon industry.

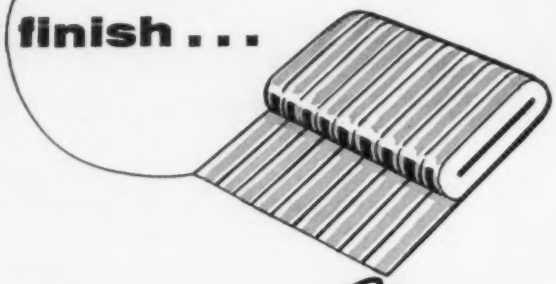
Purity meets Stauffer Standards.

STAUFFER CHEMICAL COMPANY
380 Madison Avenue, New York 17, N. Y.
Telephone: OXford 7-0600

Stauffer CHEMICALS SINCE 1885

Stauffer means service

it's a smooth operation from start to finish . . .



when you use Clinton® starches

Smooth warp sizing. Smooth finishing. Yes, from the minute you start using Clinton starches you'll experience a smooth operation all down the line.

Clinton starches are widely used for warp sizing. They increase strength . . . smooth fibers so abrasion is reduced . . . resulting in smooth running warps. And that's only the beginning. At the finishing operation, Clinton starches provide proper hand and body to your fabrics.

So, from start to finish . . . from denim to marquisette . . . choose starches by Clinton.

. . . *and remember* technical service in connection with your specific problems is available without obligation.

Quality products

FROM THE WORLD'S CORN CENTER

CLINTON

CLINTON CORN PROCESSING COMPANY
CLINTON, IOWA

Personal NOTES

ABOUT MEN YOU KNOW

For his contribution to the development of the 4-H Club program, **John B. Clark,** president of Coats & Clark, Inc., New York, N. Y., received a special citation carrying with it a bronze plaque bearing a four-leaf clover and inscription. He was also guest of honor at a recognition luncheon given by the 4-H Club.

W. A. Drisler, vice-president and sales manager of the Pond Lily Co., New Haven, Conn., has retired after 48 years in the textile industry.

C. H. Masland & Sons, Carlisle, Pa., manufacturers of rugs and carpets, have appointed **Daniel L. Masland** as director of the spinning division, Wakefield, R. I. He was formerly

Frank Masland

Daniel Masland

manager of the Wakefield Division. * * * At the Carlisle office, **Frank E. Masland, III,** has been promoted from assistant general manager to general manager.

Arthur F. Golder, in charge of dyeing and finishing at E. R. Meinig & Co., Reading, Pa., has retired, after fourteen years of service. For twenty-five years previously he held the same position for Julius Kayser & Co., Brooklyn, N. Y.

New assistant superintendent of the Karastan Rug Mill division of Fieldcrest Mills, Leaksville, N. C., is **John Cunningham,** who formerly was director of warehousing for Mohasco Industries in New York. * * * **James E. Troy** has joined the Karastan Rug Mill as director of product development. * * * Responsible for coordinating and expediting mill and staff functions involved in development and styling of domestic products at the Spray plant is **Marvin A. Law,**

Mount Hope Cloth Handling SYSTEM

Saves up to $28,000.00 per machine per shift, per year in a printing plant

EXPANDERS

CONTINUOUS ROLL FEEDS

EXPANSION GUIDES

GUIDERS

CLOTH OPENERS

SLACK SELVAGE ELIMINATORS

SKEWED WEFT STRAIGHTENERS

BOWED WEFT STRAIGHTENERS

ADJUSTABLE TENSION SQUEEZERS

OVERHEAD SHEAVES

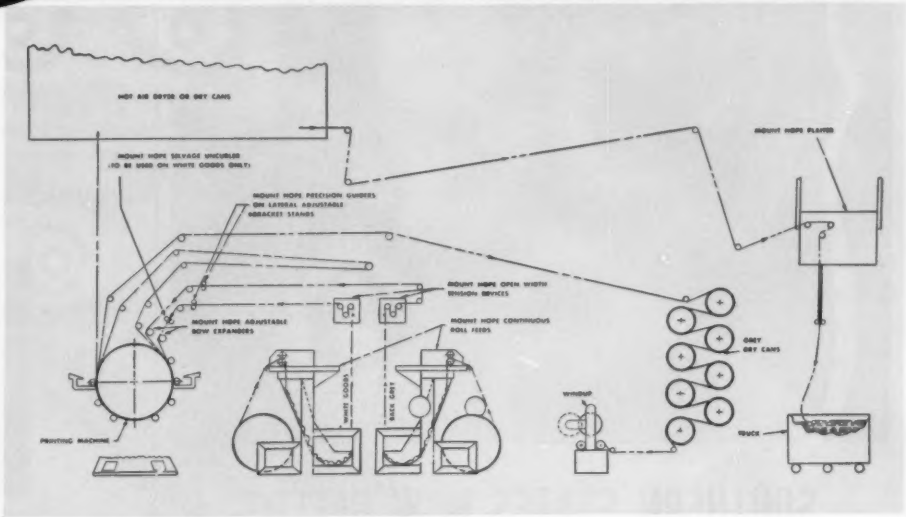
DETWISTER TURNTABLES

DETWISTER SWITCHES

PLAITERS

DRAW ROLLS

POTEYES



OTHER APPLICATIONS

The diagram herewith shows typical applications of the System in a printing plant. However, the System is also used in tentering, coating, loop-drying, continuous open width bleaching and singeing operations, complete cloth-room system, and throughout every cloth processing stage — from loom to finished material.

WHAT IT DOES

It automatically feeds and guides cloth, and does it better, more economically, more accurately and dependably than by any other method. Naturally it saves large amounts of money in so doing — as much as $28,000 per machine per shift per year in a typical printing plant — somewhat less in a finishing plant. BUT it will not effect maximum savings unless the COMPLETE system (all the units which are required in that particular case) is utilized.

WHAT YOU NEED

Deciding what is needed for a truly efficient cloth handling system is no job for the inexperienced. Ask our engineers to survey your plant and make recommendations.

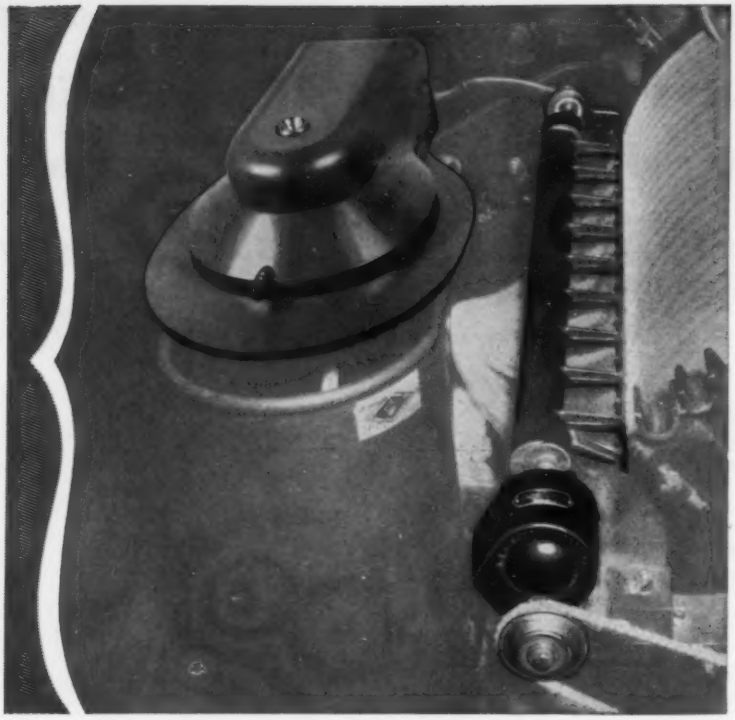
SEND FOR WRITE UP

Want more information before you take action? Then send for our write up on "The Mount Hope Cloth Handling System", which describes in detail the System's many applications and how it can save money and improve quality.

MOUNT HOPE MACHINERY COMPANY

Originators of Modern Expanders
Leaders in Cloth Handling Equipment
153 Fifth St., Taunton, Mass.

Southern Repair Shop, Charlotte, N. C.



SOUTHERN STATES NOW OFFERS A FOUR-WAY COMBINATION TO BETTER CARDING OPERATIONS

No mill need put up with hot, leaky, rattling comb boxes, hard-to-align comb blades with distorted fingers, out-dated off end bearings, or antiquated coilers with small cans. Not when Southern States has a four-way answer to all of those problems and at prices every mill can afford!

One. Ball-bearing, sealed-for-life Comb Boxes that operate smoothly, quietly and never run hot.

Two. New Aluminum Comb Stock with solid blade support. Light in weight, yet more rugged than conventional steel. End journals of steel simplify balancing and assure long life. True alignment is easy. No distortion between fingers.

Three. Vibrationless Off End Stand. Pre-lubricated sealed bearing eliminates oiling. Mounts either right or left hand.

Four. Universal Coiler Head for 14- or 15-inch cans for use on any make coiler. Simplified design. Cut tooth gears and oilite bearings throughout.

These Southern States units will bring vastly improved carding operations to your mill and cut operating costs. Facts and figures, based on case histories, will prove how they pay for themselves in record-short time. Let our representative give you the details, or write us direct.

SOUTHERN STATES
EQUIPMENT CORP.
HAMPTON, GEORGIA

Personal NOTES ABOUT MEN YOU KNOW

formerly associated with Burlington Industries and Cone Mills. * * * **J. B. Baughn,** formerly a student employee at the Bleachery and Finishing Mill, has been promoted to assistant foreman (second shift) of the piece dyeing department at the bleachery, succeeding John Romaine who resigned.

Dundee Mills, Inc., Griffin, Ga., was host at a dinner commemorating 62 years of continuous service by **George W. Greer,** retiring overseer of corduroy weaving.

Dr. Paul B. Stam has joined Burlington Industries, Greensboro, N. C.,

Dr. Stam

as area research director. * * * New officers have been elected by Pacific Mills and Burlington Mills: **Thomas S. Tolar** of Greensboro was named president of Pacific and **Michael M. Devcich, H. Cleon Estes,** and **E. H. Hines** were named as vice-presidents. Elected as vice-presidents of Burlington Mills were **Arthur L. Burnet,** of Greensboro, and **Thomas W. Evans** of New York. * * * Raeford Worsted Corp., a new sales company and Burlington Industries member, announces the election of new officers: **Joseph A. Golden** of New York, president; **Ely R. Callaway, Jr., George L. Staff, Carl J. Wiedemann** and **Norman L. Duberstein,** vice-presidents.

At the recent commencement program of Lander College, Greenwood, S. C., the Doctor of Humanities degree was conferred upon **J. B. Harris,** board chairman of Greenwood (S. C.) Mills.

At the U. S. Rubber Co., Hogansville, Ga., Stark Mill, the hose yarn department has been added to Stark twisting and winding and the combined departments are now operated under the direction of **C. B. Henderson,** overseer of twisting and winding. **E. J. Hanners** has been made as-

Simple solution to a knotty problem in large-package spooling

Barber-Colman Type "D" Large-Package, Automatic Spooler equipped with Fafnir S5KD SERIES Ball Bearings on Cheese Cores plus Sealed and Shielded Bearings at other important turning points.

Large package spooling, being a high-speed and high-production process, requires absolute free-running spindles. To meet this requirement, Barber-Colman worked with Fafnir Bearing Specialists. By shifting to precision ball bearings at certain key turning points, particularly on cheese cores and the spooler traveler, the problem was solved. These important advantages were provided: (1) friction freedom; (2) precise concentricity . . . resulting in true running spools; (3) elimination of vibration; (4) protection against lubrication leaks; (5) reduction of lubrication requirements. The first three advantages resulted in less ends down, consequently increased overall productivity.

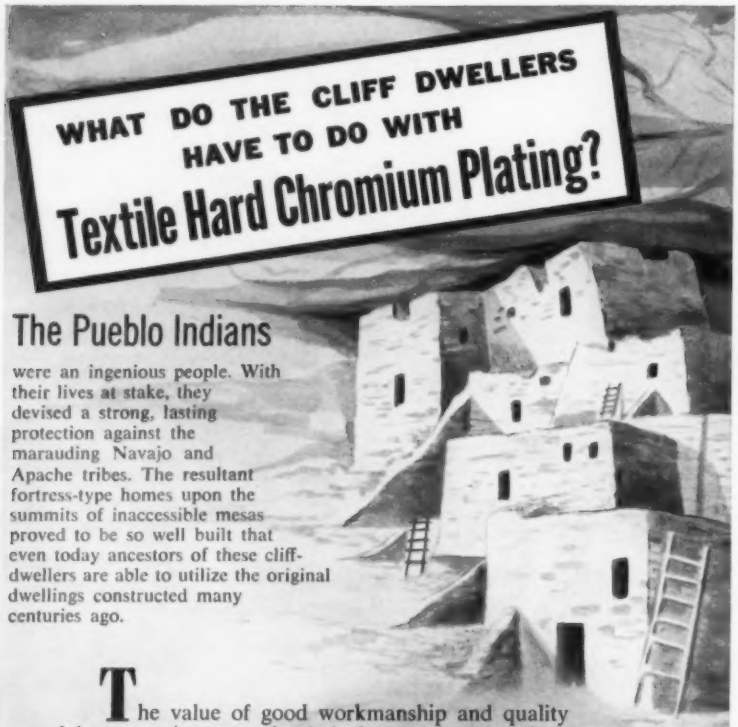
For over 35 years, Fafnir has been a Barber-Colman supplier — providing ball bearings for original equipment and replacement. Good bearings aren't the sole reason for this relationship of long standing. Equally important is the Fafnir "attitude and aptitude" — a way of looking at bearing problems from the designer's viewpoint, an aptitude for supplying the precise bearing to fit the need. Maybe this combination can help you solve a problem. Consult The Fafnir Bearing Company, New Britain, Connecticut.

FAFNIR S SERIES
(Extra Small)
BALL BEARINGS

FAFNIR MECHANI-SEAL BALL BEARING
(Slinger Seal Type — friction free)

FAFNIR PLYA-SEAL BALL BEARING
(Contact Seal Type — pre-lubricated for long life)

FAFNIR
BALL BEARINGS
MOST COMPLETE LINE IN AMERICA



The Pueblo Indians

were an ingenious people. With their lives at stake, they devised a strong, lasting protection against the marauding Navajo and Apache tribes. The resultant fortress-type homes upon the summits of inaccessible mesas proved to be so well built that even today ancestors of these cliff-dwellers are able to utilize the original dwellings constructed many centuries ago.

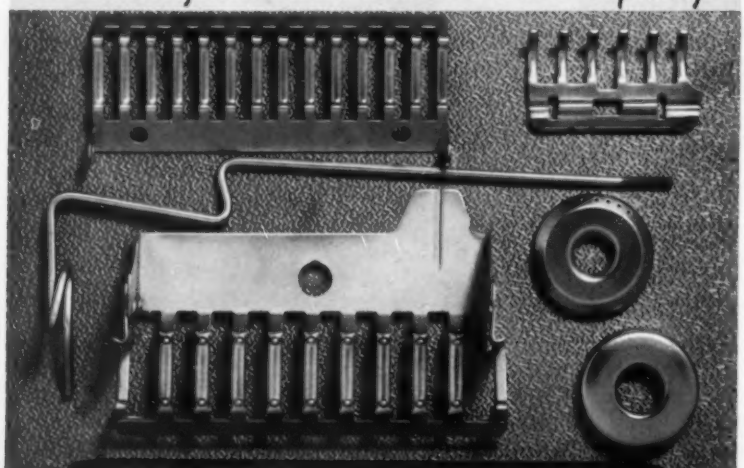
The value of good workmanship and quality materials cannot be overestimated. Let us show you how WALHARD HARD CHROMIUM PLATING will give your parts longer-lasting protection and save you money in maintenance and down-time costs.

If you are buying chromium plating, you are *paying* for both quality and service regardless of what you are getting. Then why not have the very best — try WALHARD on your next hard chromium plating order.

Be sure you are getting quality . . . it costs no more and lasts longer.

Walhard

The leading name in textile hard chromium plating



WALTON and LONSBURY

77 NORTH AVENUE — ATTLEBORO, MASSACHUSETTS

Personal NOTES ABOUT MEN YOU KNOW

sistant overseer. **J. T. Kelly** assistant to the technical supervisor at Reid Mill, has replaced Mr. Hanners in production scheduling. * * * **T. L. Bailey,** overseer of hose yarn, has retired, following 19 years of service.

At the Eagle-Phenix division of Fairforest Manufacturing Co., Columbus, Ga., promotions have been made as follows: **Marvin Cox,** to overseer of weaving, No. 2; **R. M. Hicklin,** to assistant superintendent in charge of carding, spinning, preparation and dyeing; **Roy Watt,** to planning and scheduling; **Ernest Smith,** to designing; and **Hubert Adams** to assistant superintendent in charge of weaving and the cloth room.

American Felt Co., Glenville, Conn., has appointed **E. P. Wenzelberger** as supervisor of the felt specialties division with headquarters at the Newburgh, N. Y., plant. The appointment

Mr. Wenzelberger

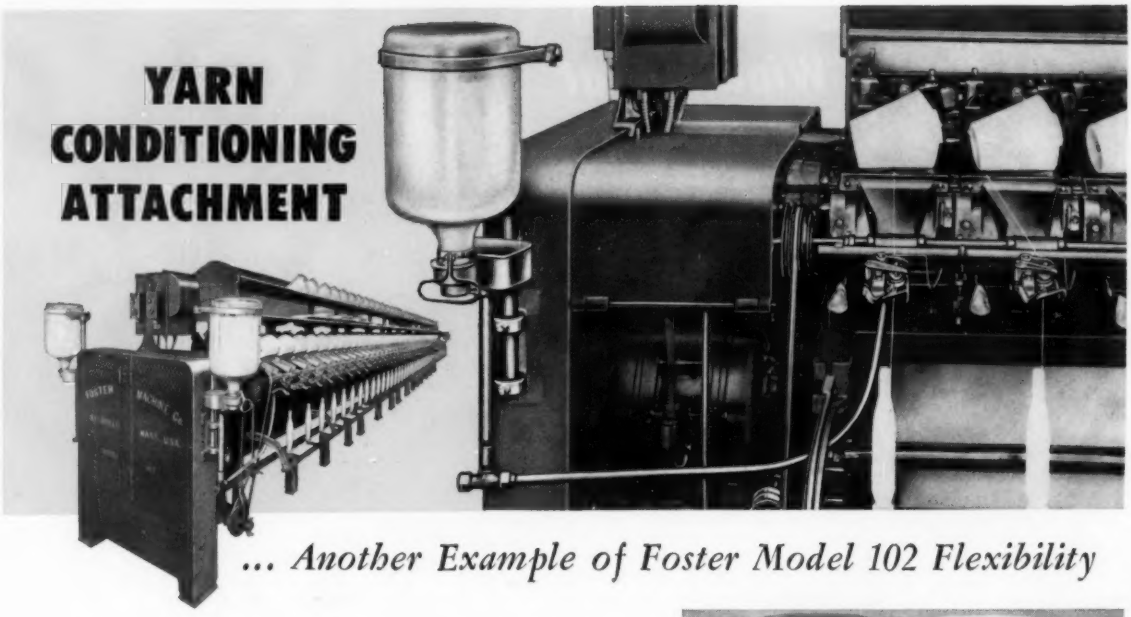
coincided with an announcement of the expansion of the division in the development of new commercial applications for coated, laminated, and impregnated felts.

P. H. Hanes, Sr., one of the founders of the P. H. Hanes Knitting Co., Winston-Salem, N. C., is retiring from active management but will retain his position as chairman of the board. General manager of the company since it was founded in 1902, Mr. Hanes was recently honored by industry leaders at a testimonial dinner.

Dr. Helmut Wakeham, director of research at Textile Research Institute, Princeton, N. J., has been granted a two-year leave of absence from TRI to assume the post of director of the Ahmedabad (India) Textile Industry Research Association, an industry-

(Continued on page 36)

YARN CONDITIONING ATTACHMENT



... *Another Example of Foster Model 102 Flexibility*

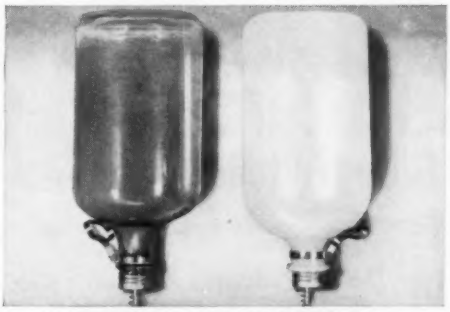
This flexibility feature of the Foster Model 102 Winder is particularly important, because some types of winders can not use yarn conditioning attachments.

This attachment lubricates and softens yarns with a wax or oil emulsion. It restores normal moisture content and gives the yarn a soft hand, so that it will run well in the knitting machine and reduce needle breakage.

Readily applied to existing machines, or supplied with new machines, it is particularly useful when winding mercerized yarn or package dyed yarn. It can condition any type of yarn at any speed within the capacity of the machine — up to 750 y.p.m. It also permits numerous variations in percentage of moisture pickup.

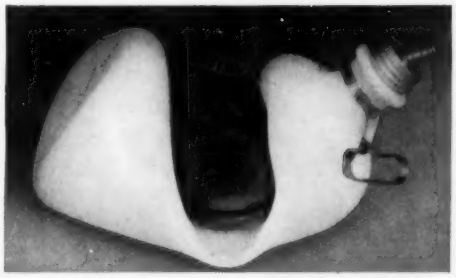
Other flexibility features of the Foster Model 102 are: — 1. Handles any type or count of staple yarn except the coarsest. 2. Produces any cone taper commonly used and any angle of wind from 9° to 18°, with simple and inexpensive changes. 3. Can be equipped to wind knitting cones, warping cones, parallel tubes, dye packages or short traverse cheeses. 4. Winds dyed yarn, even when damp. 5. Can be built to wind up to 7" traverse.

Who knows what you'll be winding a few years from now? Be prepared for the unforseen insofar as possible. Get all the facts about the Foster Model 102. Send for Bulletin A-95 now.



GLASS PLASTIC

PLASTIC BOTTLES now available for Foster Yarn Conditioning Attachment. Weigh only 2 lbs. ½ oz. Glass bottle weighs 6 lbs. 15½ oz.



UNBREAKABLE. Does not shatter, if dropped. Lasts indefinitely; eliminates accidents; pays for itself many times over.

FOSTER MACHINE COMPANY

Westfield, Massachusetts, U. S. A.
Southern Office — Johnston Bldg., Charlotte, N. C.

A Winder for Every Textile Purpose

Canadian Representative — Ross Whitehead & Co., Ltd., 1475 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ont.
European Representative — Muschamp Textile Machinery Limited, Keb Lant Bardsley, Oldham, England

For Better Winding - at
LOWER COST!

Whitin-Schweiter
FILL-MASTER*
Filling Winder

The latest addition to Whitin's winder line, the Whitin-Schweiter FILL-MASTER Automatic Filling Bobbin Winder, is a highly versatile machine — a fully automatic, high speed, filling winder with many attractive and unusual features. Among these, a new exhaust device will be very advantageous to all mills encountering dust, lint, and fly in the rewinding process. Each supply package and tension device is housed in a transparent enclosure from which fly, etc., is removed to a dust collector.

ADDITIONAL FEATURES

- Speeds up to 10,000 R.P.M.
- Tail-less Bobbin
- Scissor and Tail Cutter eliminated
- Spindle speed adjustable over wide range for every spindle position
- Automatic empty bobbin loader or new manual or loaded multicell magazine
- New variable layer locking traverse prevents sloughing
- Quick positive adjustment for wound bobbin diameter
- Will handle bobbins up to 10⅛"

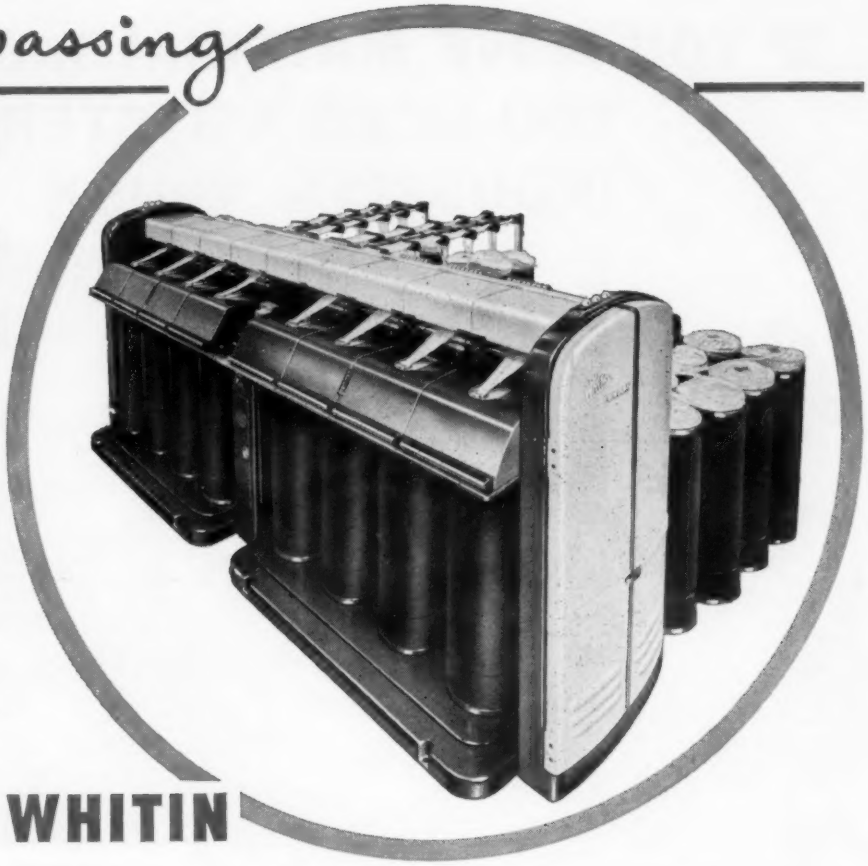
* Trade Mark

Whitin
MACHINE WORKS
Whitinsville • Massachusetts

CHARLOTTE, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

Special sales agent: H. J. THEILER CORPORATION — Whitinsville, Mass., Spartanburg, S. C.

Surpassing all present-day standards of drawing . . . .the New WHITIN



EVEN-DRAFT* Drawing Frame

Seldom has any new textile machine had so pronounced an impact,—been so definitely successful — as the new Whitin Even-Draft Drawing Frame. In many large installations (up to 80 deliveries), mills report production doubled or tripled, sliver quality reaching levels formerly unattainable, and costs slashed to new lows. In short, all current standards for drawing have been completely surpassed by this new Whitin high production, precision-made textile machine.

● **From 250-300 feet per minute Front Roll Delivery**

Production two to three times more than conventional machines, depending upon mill conditions and production needs.

● **For all fibers up to 3"**

The first universal drawing frame — for cotton, spun synthetics and blends.

● **Outstanding Sliver Quality**

Improved uniformity in both carded and combed sliver — 6 or 8 ends up.

● **Pneumafil Clearer Units**

A brand new way of removing waste fibers. Developed for, and an integral part of, this machine.

● **Entirely New Design**

Two independent four-delivery heads, vibration proof construction; precision tolerances; anti-friction bearings; unique four over five roll drafting; new overarm weighting; no-twist can table; electronic stop motions and signal lights; 14" — 15" — 16" cans, 36" or 42" high.

*TRADE MARK

WHITIN MACHINE WORKS FOR 125 YEARS SERVICE TO THE TEXTILE INDUSTRY 1831-1956

Whitin MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS

CHARLOTTE, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

IF YOU MOVE MATERIALS... YOU *NEED* A HYSTER INDUSTRIAL TRUCK

Load-Grab® equipped Hyster 20 placing two bales of cotton cloth in storage. Finished goods are moved by this unit and loaded into cars and trucks.

Pictured above is one of many typical examples of how Hyster® Industrial Trucks are helping to effect tremendous savings in the cost of handling materials in the Textile Industry.

Even if you are now using lift trucks or have never used industrial trucks of any kind, your Hyster dealer can show you how you can quickly realize more profit from your operation with these multi-purpose utility tools. Your Hyster dealer knows materials handling . . . he is an expert on the problems and their solution. He can help you with special techniques and cost reducing methods. Call him today...why not take advantage of his materials handling know-how? He is listed under "Trucks-Industrial" in your telephone directory.

HYSTER DEALERS GIVE YOU ALL 3!

1 **PLANNING**—your Hyster Dealer will plan your materials handling operation from scratch, or will analyze your present system to see if it can be improved.

2 **THE RIGHT TRUCK**—for *your* job from Hyster's complete line of industrial trucks (1,000-30,000 lbs.) and over 100 job-attachments for economical load handling.

3 **THE RIGHT SERVICE**—ample spare parts stock, shop facilities, factory-trained mechanics and an efficient field service that keep your Hyster lift trucks going on your job, wherever your job might be located. Hyster trucks are noted the world over for their low downtime.

Materials Handling Trucks from 1,000 to 30,000 pound capacities

2902-57 N. E. CLACKAMAS, PORTLAND 8, OREGON
1010-57 MYERS STREET.....DANVILLE, ILLINOIS
HYSTER N.V. .....NIJMEGEN, THE NETHERLANDS
FOUR FACTORIES: Portland, Oregon; Danville, Illinois; Peoria, Illinois; Nijmegen, The Netherlands

HYSTER

HYSTER COMPANY

by National Aniline Dyes

This year soft goods have an unusual opportunity to win a larger share of the consumer dollar. As never before, fashion-right colors can provide a powerful stimulus to textile volume. Nothing else adds so much sales appeal . . . so much visible evidence of value for so little.

Anticipating the trend, we have added many new colors to our lines; have intensified Technical Service activities and application research on new fibers and blends and have streamlined sales office, warehousing and delivery services.

Better than ever before, National stands ready to help you get your share of growing soft-goods markets by better use of better color on better fabrics. More than ever before it pays to call National Aniline *first*.

Green Coat — Elfreda, Inc.

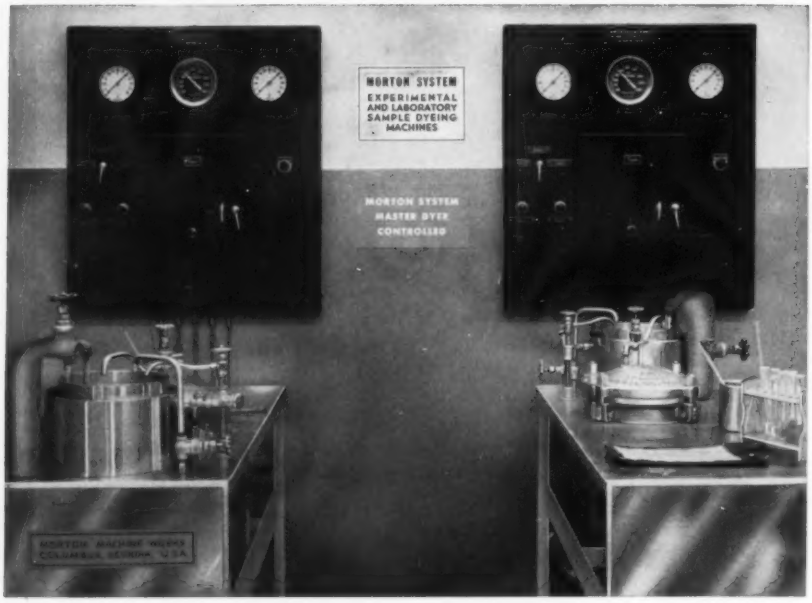
Allied Chemical

NATIONAL ANILINE DIVISION ALLIED CHEMICAL & DYE CORPORATION • 40 RECTOR ST. NEW YORK 6, N. Y.

Boston · Providence · Philadelphia · San Francisco · Chicago · Cleveland · Greensboro · Portland, Ore.
Charlotte · Richmond · Atlanta · Los Angeles · New Orleans · Columbus, Ga. · Chattanooga · Toronto

MORTON SYSTEM ☆ ☆ ☆

EXPERIMENTAL AND LABORATORY SAMPLE DYEING MACHINE



This sample unit is designed to aid Dyer in determining the formulae to be used in the production machines. This is a splendid machine for laboratory work and it is for use with all types of packaged yarn wound on springs or tubes. Natural or synthetic stock or yarn may be processed in this machine at conventional pressures and temperatures; or elevated temperatures and at high pressures. Machine mounted on a stainless steel laboratory table.

The Morton System Laboratory Sample Dyeing Machines have all parts contacting the liquids in the machine constructed of stainless steel or any metal specified. The entire machine is similar to the production units and has all the features such as reversible dye liquor flow, controlled by Morton Ball Bearing Reverse Valve.

★ —Machine may be heated by steam or electricity.
★ —For use at temperatures up to 325° F.
★ —Continuous wash.
★ —Heavy Duty Engineering Principles.

Manufactured by:

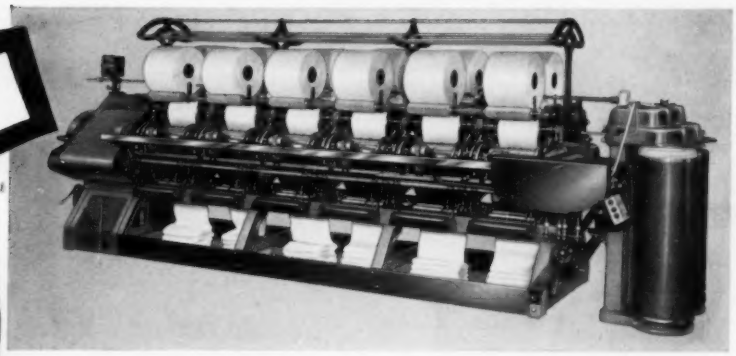
MORTON MACHINE WORKS, Inc.

COLUMBUS, GEORGIA, U. S. A.

Manufacturers of the MORTON SYSTEM Machinery for Dyeing and Bleaching of:

BEAMS -:- PACKAGES -:- STOCK -:- PIECE -:- TOPS

VALVES — PUMPS — BEAM AND PACKAGE EXTRACTORS AND DRYERS — DYE BEAMS, ALL MAKES AND DESIGNS — DYE TUBES — DYE SPINDLES — TUBE SPACERS — CUSTOM BUILT TANKS TO CUSTOMER'S SPECIFICATIONS.



6 REASONS WHY

THE AMERICAN THREAD COMPANY
ONE OF THE FOREMOST PRODUCERS OF QUALITY SEWING THREADS,

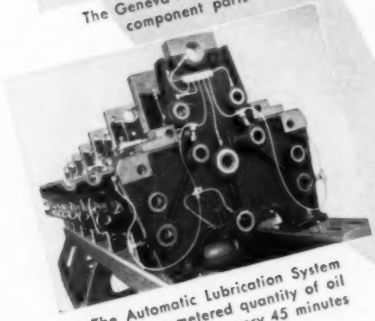
HAVE PURCHASED

SACO-LOWELL MODEL 56 COMBERS

After exhaustive tests by the Research and Operating Departments of American Thread, the following facts were conclusively proven about Saco-Lowell's Model 56 Comber:

1. Higher production per man-hour was obtained in combing both American and Egyptian cotton.
2. A definite increase in recovery of spinnable fibre, showing a high degree of detaching efficiency.
3. Low variation in sliver weight.
4. Accurate control of noil from comber to comber and head to head.
5. Increased production per square foot of floor space.
6. Fully automatic lubrication assured reduction in maintenance costs.

The Geneva Motion and its component parts



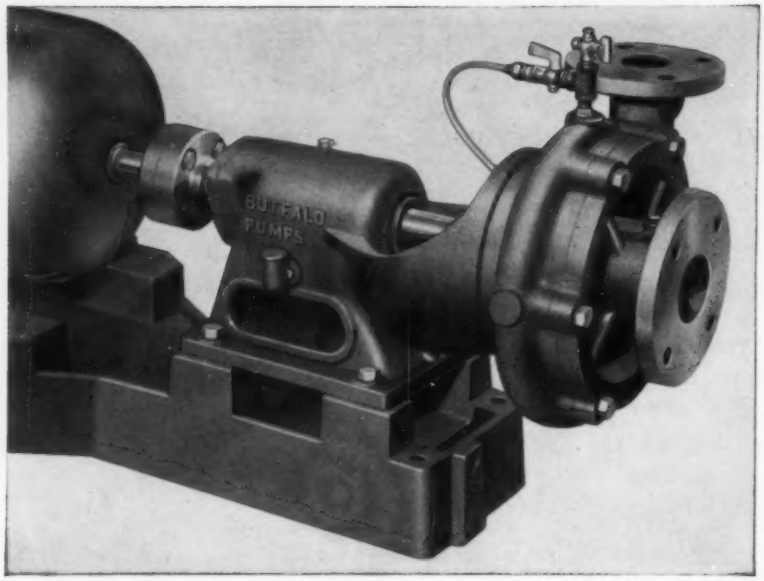
The Automatic Lubrication System delivers a metered quantity of oil to every bearing every 45 minutes

We are extremely proud that this fine, quality-conscious company has selected the Model 56 Comber for their Clover Plant. They join a distinguished group of mills who have already improved their combing operations by Saco-Lowellizing.

Saco-Lowell Model 56 Combers are producing as much as 55 lbs. per hour with 1 3/16" American cotton. In addition, test after test has shown a detaching efficiency that is 2% better than any other comber. Your mill can enjoy this performance and corresponding increase in profit.

Your nearest Saco-Lowell Sales Office will be glad to send an engineer to discuss your combing operations.

SACO-LOWELL
60 BATTERYMARCH STREET, BOSTON 10, MASS.
Shops at BIDDEFORD and SACO, MAINE, and SANFORD, N. C.
SALES OFFICES: CHARLOTTE • GREENSBORO • GREENVILLE • ATLANTA



"BUFFALO" FULL BALL BEARING PUMP

FOR CLEAR WATER OR CHEMICALS

COST-PER-GALLON IS YOUR MAJOR SAVING WITH THIS HUSKY PUMP!

If pump bids could be made on cost-per-gallon over a period of years, this one would be "low pump" by a big margin. That's because it saves on the major expenses of pump ownership—maintenance costs and driving power.

First, it's built to take hard service! It's oversize shaft has large, precision ball thrust and guide bearings with ample oil reservoir—to stand speeds up to 5,000 rpm. The stuffing box holds 8 rings of packing. The rugged casing has a renewable bronze wearing ring. *Second, it's engineered for efficiency!* The "Buffalo" enclosed type bronze impeller is well-known for its efficiency, and all water passages in the casing are large and simply formed for the least possible friction.

Check these and other "Q" Factor* features in "Buffalo" clear water and chemical pumps—write today for Bulletin 976-E.

*The "Q" Factor—the built-in Quality which provides trouble-free satisfaction and long life.

"Buffalo" PUMPS

BUFFALO PUMPS

DIVISION OF BUFFALO FORGE COMPANY

175 MORTIMER ST. • BUFFALO, N. Y

Canada Pumps, Ltd., Kitchener, Ont.

Sales Representatives in all Principal Cities

A BETTER CENTRIFUGAL PUMP FOR EVERY LIQUID

Personal NOTES ABOUT MEN YOU KNOW

(Continued from page 28)

sponsored textile research organization receiving partial support from the Indian government. Dr. Wakeham's function will also include the training of an Indian understudy to become the permanent director of the laboratory.

At the Asheboro (N. C.) Hosiery Finishing Plant of Burlington Hosiery Co., promotions have been made as follows: **O. C. Clark** from superintendent of the plant to assistant division manager; **William J. Bowman** from supervisor of the order and planning department to plant superintendent; and **Norman B. Fidler** to order planning supervisor.

Howard B. Carlisle, Jr., Lyman (S. C.) Mills, Inc., was elected president of the South Carolina Textile Manufacturers Association. **Alan B. Sibley**

Mr. Carlisle

of Judson Mills, Greenville, was named vice-president, and **John K. Cauthen,** re-elected executive vice-president.

At the Plastavon manufacturing department of Avondale Mills, Sylacauga, Ala., **Elvin T. Mizzell** has been promoted to manager.

Former quality control manager for Colgate Piece Dye Works, Hawthorne, N. J., **John Niewaroski,** has rejoined the company as plant supervisor succeeding Arnold Silver, who has resigned.

Joseph H. Nix, formerly superintendent of the LaFayette, Ga., plant of E. T. Barwick Mills, is now vice-president in charge of manufacturing at both the LaFayette and Dalton, Ga., plants.

New manager of the Pequot Finishing Plant, Whitney, S. C., is **Benjamin**

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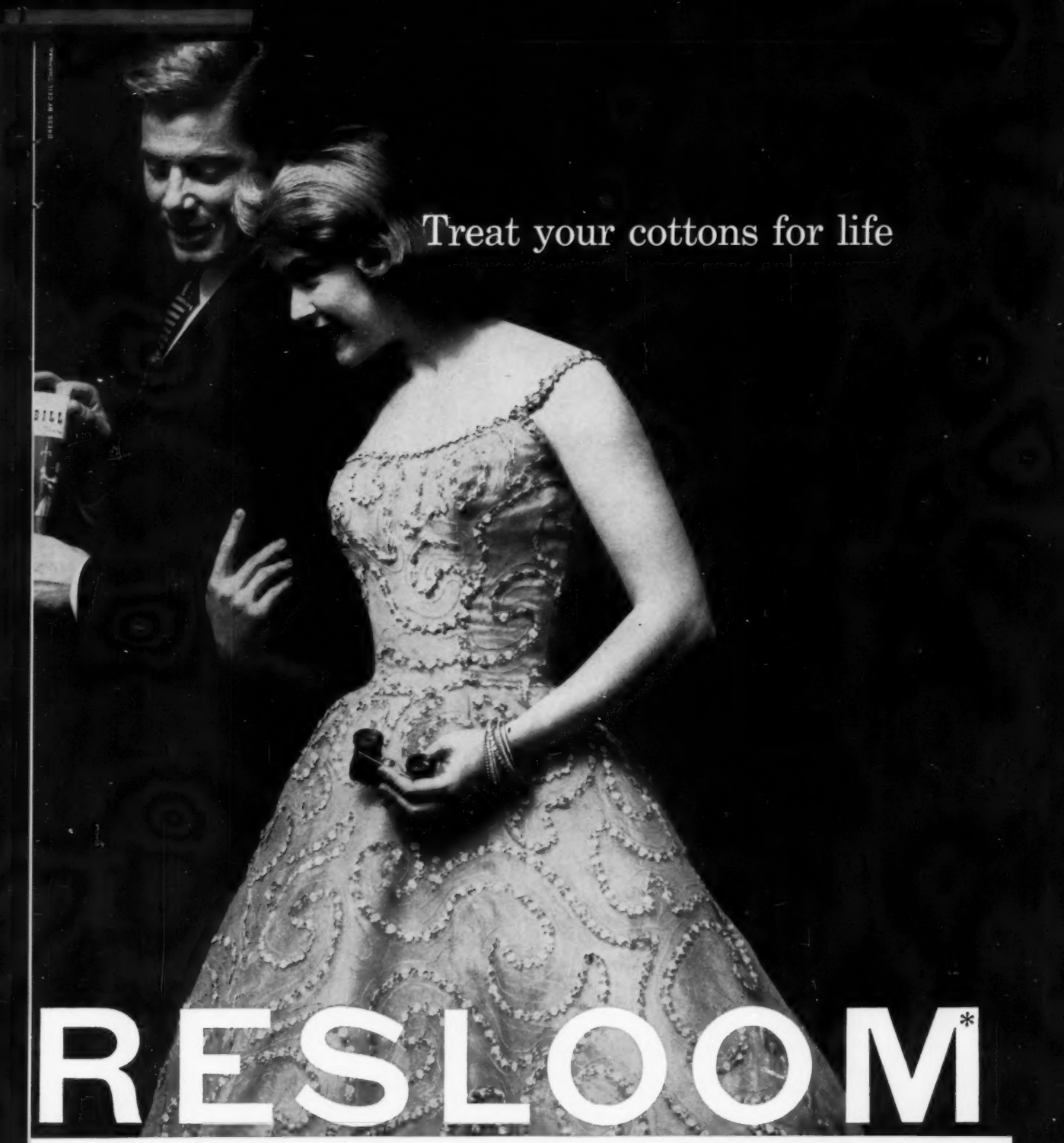


RESLOOM E-50, the Monsanto cyclic urea resin . . . modifies fibers for optimum results!

MONSANTO

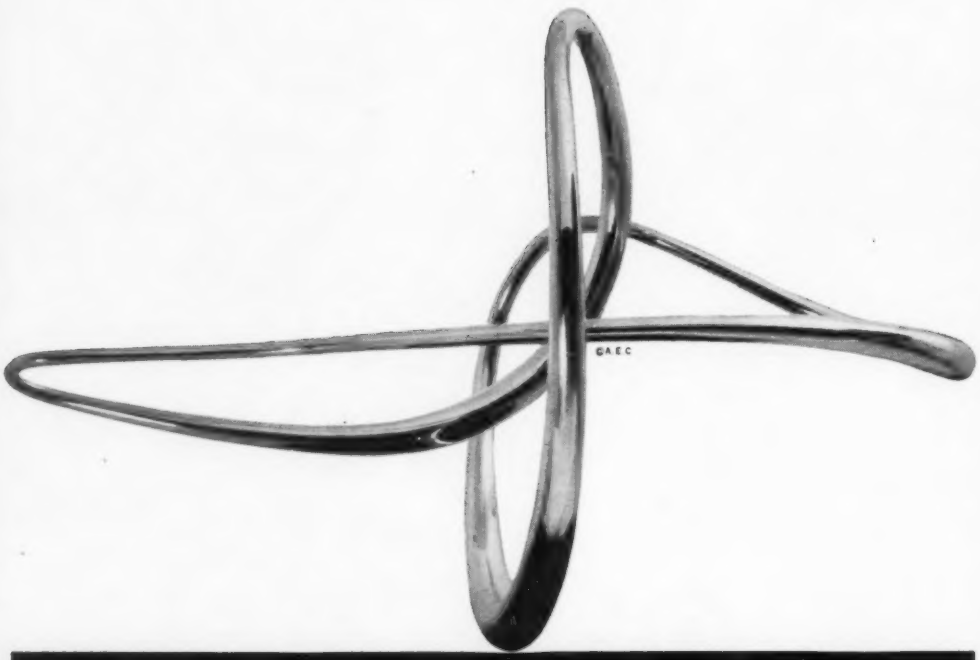
*RESLOOM: REG. U.S. PAT. OFF.

Four words summarize the remarkable effectiveness of Resloom E-50 when used to finish cottons: *It doesn't wash out!*

After repeated launderings, cottons treated with this Monsanto cyclic urea formaldehyde resin require little or no ironing. They also retain their crush resistance and dimensional stability.

The reason for the outstanding durability of Resloom E-50 is simple. Instead of reacting with itself, it is designed to react exclusively with the fabric. All active ingredients diffuse into the interior of cellulosic fibers and actually modify fiber characteristics.

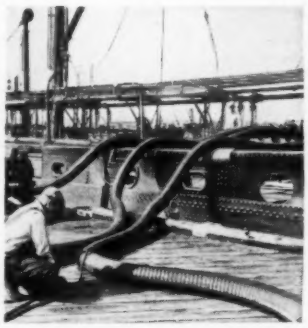
Call in Monsanto for expert counsel on how to "treat your cottons for life." In addition to Resloom E-50, Monsanto also supplies melamine finishing resins, tradenamed Resloom HP and M-75, as well as Catalyst AC for stepping up curing efficiency. Write on your letterhead for technical bulletin and experimental samples. Monsanto Chemical Company, Plastics Division, Room 1037, Springfield 2, Mass.



Sculpture by Jose de Rivera—symbol of American Enka Corporation, one of America's great producers of synthetic fibers.

Performance depends above all upon quality and planning. It is vitally important to the user to know that Enka has developed its product with his specific end use in mind from the very beginning. That is why Enka yarns consistently deliver satisfactory performance in action.

Manufacturers of industrial hose know they can rely on Enka high tenacity rayon to give their products the ***strength and durability*** they require. And, from the standpoint of economy, Enka high tenacity rayon offers these advantages at ***lower cost***. Think what this can mean in your business and call American Enka today.



American Enka Corporation • *206 Madison Avenue, New York 16, N.Y.*

"Just pack, strap, stencil!"

Packaging is routine since Textiles, Inc., adopted H & D corrugated boxes to carry its annual $22 million in yarn with never a mishap. May we simplify your packaging program, too? Check H & D.

HINDE & DAUCH

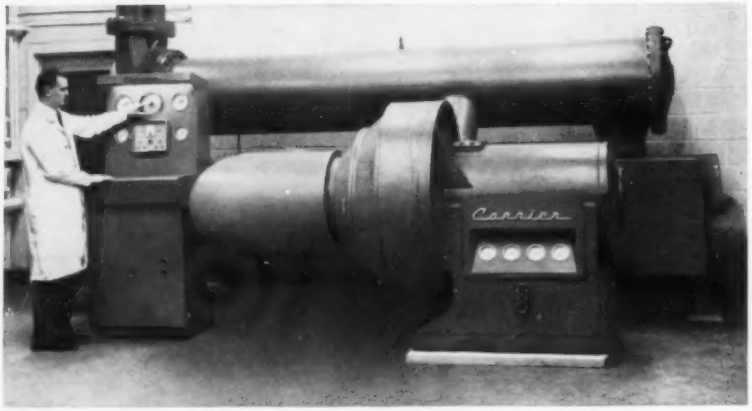
Subsidiary of West Virginia Pulp and Paper Company

AUTHORITY ON PACKAGING • SANDUSKY, OHIO
13 FACTORIES • 40 SALES OFFICES

Carrier Textile News

MOST EXCITING AIR CONDITIONING EQUIPMENT OF 1956

New Carrier Centrifugal Refrigerating Machine is a Hermetic



COMPACT DESIGN AND LIGHT WEIGHT cut equipment space in your mill to a minimum . . . make installation easy. Because the hermetic motor and compressor are factory assembled on a single shaft, there is no problem of field alignment.

And what a hermetic! It operates automatically . . . its motor is cooled by its own refrigerant . . . it weaves weight savings, space savings and efficiency together to a degree never before achieved in a centrifugal.

One key to superb efficiency is in the constant-speed motor-compressor mounted on the same shaft. Another is push-button operation and electronic controls.

Moment by moment, capacity output is adjusted to load, automatically, by inlet vanes hydraulically powered—a Carrier exclusive. As load varies, oil pressure opens or closes the vanes.

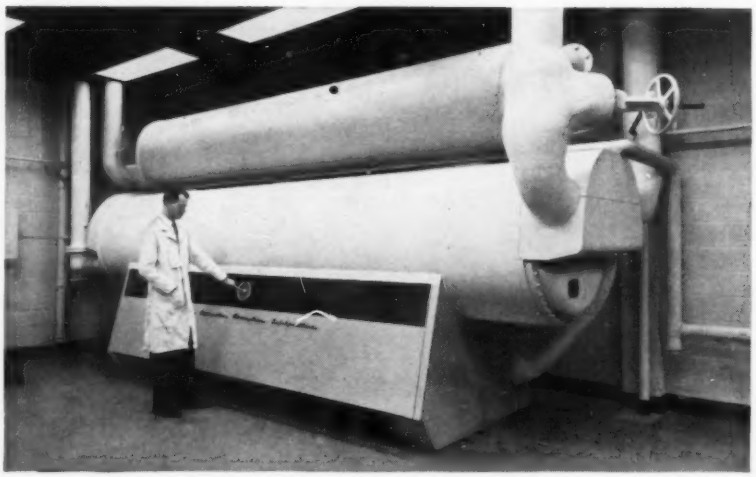
New Carrier Absorption Machine cools with steam

Here's a new refrigerating machine for your mill that cools with low-pressure steam! This cost-cutting water-chilling machine fits easily into your present evaporative cooling system, gives you complete control of temperature and humidity. And it's fully automatic!

Push a single button and electronic controls take over. Push the button again and the system shuts down. In between, the Carrier Absorption Machine follows the rise and fall of the load from maximum to zero capacity.

WRITE FOR FREE BOOKLETS!

Find out how Carrier refrigerating machines can be the heart of any textile mill air conditioning system. For your copies of new booklets telling about Carrier Centrifugal and Absorption Machines, call the nearest Carrier office. Or write Carrier Corporation, Syracuse, New York.



CARRIER ABSORPTION MACHINES are so simple in design you can carry all the spare parts for the largest machine in a brief case. Machines are available in sizes with capacities to fit a wide range of needs—from 100 to 700 tons of cooling.

Like a claw, Dow chelating agents firmly grasp and hold metal ions in solution, preventing them from undergoing the usual chemical reactions. But why so many Versene products? Are they effective on all metallic ions? We hope this continued discussion provides the answers, and further clarifies what chelates will do—and won't do.

DOW

The Chemistry of Chelation: Part III

Specific agents for specific conditions · Caustic solutions Changing solutions · Industry responds

In all, Dow offers 15 commercially available chelation products. These are grouped in the Versene®, Versenol®, and iron specialty (Versene Fe-3 Specific®, Versene T®, Versene S) series. The Versene and Versenol series were discussed in Part II of this advertisement. When used in solution, the Versene products inactivate practically any polyvalent metallic ion they contact. They accomplish this by actually forming a new compound in which the metal ion becomes a member of a stable inner ring structure in the molecule, so that no reversion or breakdown can occur. However, no one chelating agent can complex all metal ions under all conditions. One of the major considerations determining which chelating agent to use is pH. To illustrate, let's look at iron-containing systems, among the most troublesome for chemical processors.

SPECIFIC AGENTS FOR SPECIFIC CONDITIONS

The first amino acid type chelate made commercially available was Versene, the tetrasodium salt of EDTA*. It is the most versatile member of the series for it ties up most polyvalent metal ions throughout the pH range—with this notable exception: It is excellent for complexing iron in the acid range only. For economy above pH 7, we must look to a later development, Versene Fe-3 Specific.

The most effective and efficient agent known for complexing iron in the mildly alkaline pH range, Versene Fe-3 Specific also chelates copper, nickel, and cobalt—but has no effect on calcium, magnesium or other common non-transition metal ions. Where calcium and magnesium along with iron cause difficulty in alkaline solutions, a blend of Versene and Versene Fe-3 Specific is the answer. This mixture, called Versene Fe-3, complexes all of these troublesome ions. Its Versene Fe-3 Specific content is sufficient so as to automatically take care of the quantity of iron normally encountered in hard water.

Versene Fe-3 is also considered an important adjunct to the polymerization of synthetic rubber. It controls the concentration of the iron ions catalyzing the reaction, thus insuring a more-uniform, higher-quality end product.

CAUSTIC SOLUTIONS

For chelating iron in caustic solution, another agent enters the picture—Versene T. This material ties up iron in a wide range of caustic solution concentrations. It also complexes calcium, magnesium, nickel, cobalt, and other metal ions—throughout the normal pH range as well as in caustic solutions. In the presence of a suitable reducing agent, Versene T functions effectively as a rust remover—and without the drawbacks of acid cleaners. Versene T thus finds widespread use in boiler and heat exchanger cleaning, textile processing, etc.

Another effective chelating agent that is selective for iron in the free caustic pH range is Versene S. Since it will not chelate alkaline earth ions, Versene S is especially suitable for use in silicate-lined textile processing kiers.

CHANGING SOLUTIONS

In special instances where a processing solution is strongly alkaline at first, then changes to neutral or to acidic, iron can be controlled with a mixture of Versene T and Versene Fe-3 Specific. In this combination, the Versene T component complexes the iron when the solution is caustic. As the pH drops, Versene Fe-3 Specific takes over.

INDUSTRY RESPONDS

Every day, Dow chelates are finding new and expanding usage —in textile manufacturing and rubber processing, in soaps, synthetic detergents, cosmetics, and pharmaceuticals. Their ability to control ionic concentrations, to eliminate product breakdown, to smooth out production and save money, has brought enthusiastic response from industry. That they are solving a multitude of processing problems is true. But chelates are no cure-all. To uncover their profitable uses, we will help in any way we can. Write us on your company letterhead for application data and technical assistance. Technical Service and Development, Department SC 913L, THE DOW CHEMICAL COMPANY, Midland, Michigan.

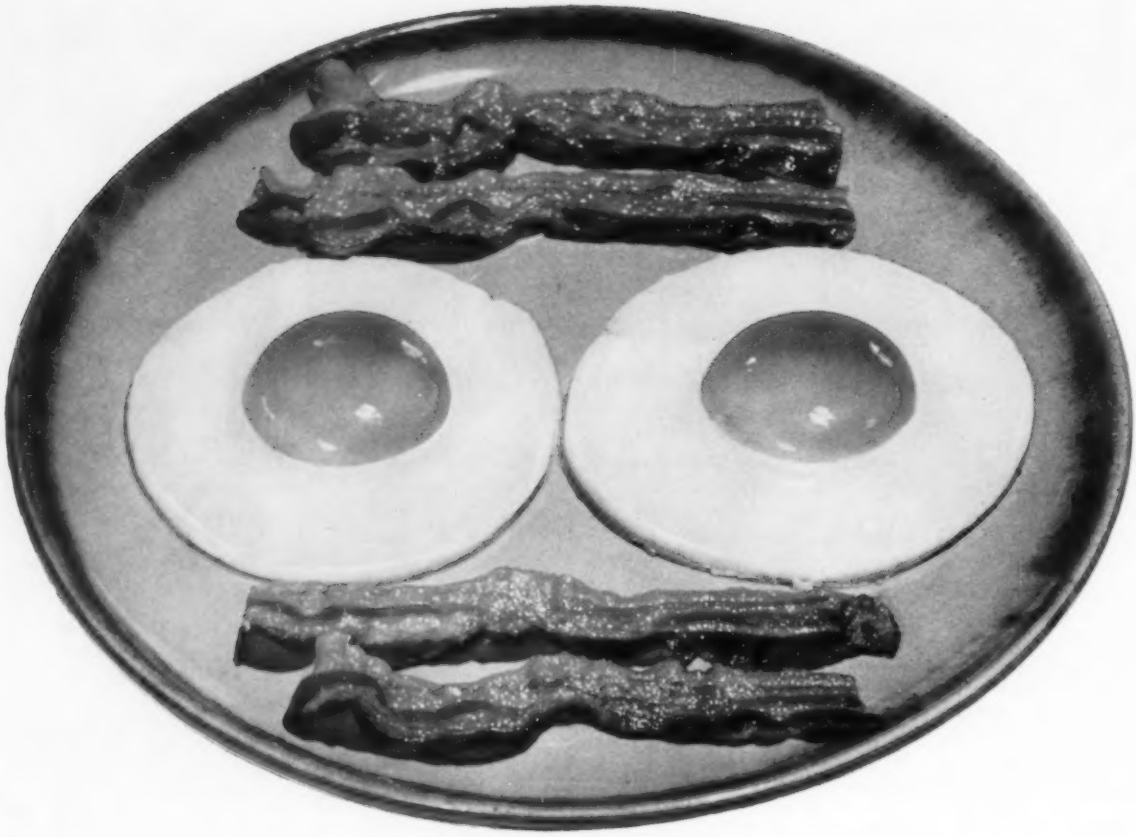
*Ethylenediaminetetraacetic acid

THE NEXT TOPIC IN THIS SERIES

PART IV *October* — Applications in specific industries (formulation of alkaline cleansers—stabilization of hydrogen peroxide and kier boiling in textile processing—uniform control of trace metal catalysts in polymerization of synthetic rubber—other industrial applications).

you can depend on DOW CHEMICALS

DOW



. . . a combination that's hard to beat!

Laminated plastics . . . for a combination of properties that *can't* be beat

SYNTHANE is a favorite material among engineers, designers, and product-conscious executives because it possesses a combination of many properties. It is light in weight, strong; has high dimensional stability, excellent electrical properties and chemical resistance. It's also easy to fabricate.

Synthane is a natural for textile bobbins. It is hard, dense and super-smooth . . . won't snag fine yarns. Synthane is strong and tough and can take rough handling. It is dimensionally stable and can be machined to close tolerances. Because of their inherent light weight, Synthane bobbins start and stop quickly and easily.

Property combinations! Synthane has them . . . in over 30 individual grades . . . sheets, rods, tubes, moldings and completely fabricated parts. Send for free illustrated catalog today.

EASILY MACHINED

DIELECTRIC STRENGTH

TENSILE STRENGTH

CHEMICAL RESISTANCE

SYNTHANE

SYNTHANE CORPORATION, 9 RIVER ROAD, OAKS, PA.

Spindle Speeds

"...Textile Operations can be Checked More Rapidly with the STROBOTAC®"

"We have found that by using the Strobotac to determine spindle speeds, the job can be done much more rapidly. As a matter of fact, if we had to use some other speed indicator, we would only make spot checks as each frame has 252 spindles. With the Strobotac, however, we can walk right along the frame, checking each spindle without having to even break down an end."

CROSS COTTON MILLS Company
C. F. Goldsmith

STROBOTAC®... for the accurate measurement of speeds from 300 rpm to 100,000 rpm . . . will "stop" or "slow" cyclic motion from 60 to 100,000 rpm for visual observation of rapidly moving parts or mechanisms . . . operates from any 115-volt, 60-cycle a-c line... requires no mechanical or electrical connection to the part under observation . . . is easily handled and operated and has a 2 or 3 foot field of vision.

The G-R Strobotac is being used in hundreds of textile plants throughout the country to insure the quality of woolen, cotton, silk and synthetic yarns of all types.

The Strobotac permits visual observation in s-l-o-w motion of rapidly moving parts and mechanisms which are impossible to see with the unaided eye.

Defects which can readily be detected with the stroboscopic light produced by this instrument include: slack or dirty bands or tapes, spindles that need oiling, crooked idlers, spindles out of plumb or cracked or worn, bobbins that fit spindles inaccurately, belt and tape slippage . . . ring rail not level . . . thread in whorl, uneven yarn, mixed yarn and oily yarn . . . uneven motion of ring travelers . . . and many others.

Any spindle speed variation such as slow starting, slipping, or failure to stop immediately can give inferior quality yarn. The Strobotac makes it possible to put a spindle through all of its "paces", permitting accurate visual observation for any possible defective operation. Regular scheduled use of the Strobotac will definitely improve the quality of yarn in your plant.

Type 631-BL STROBOTAC
$155.00

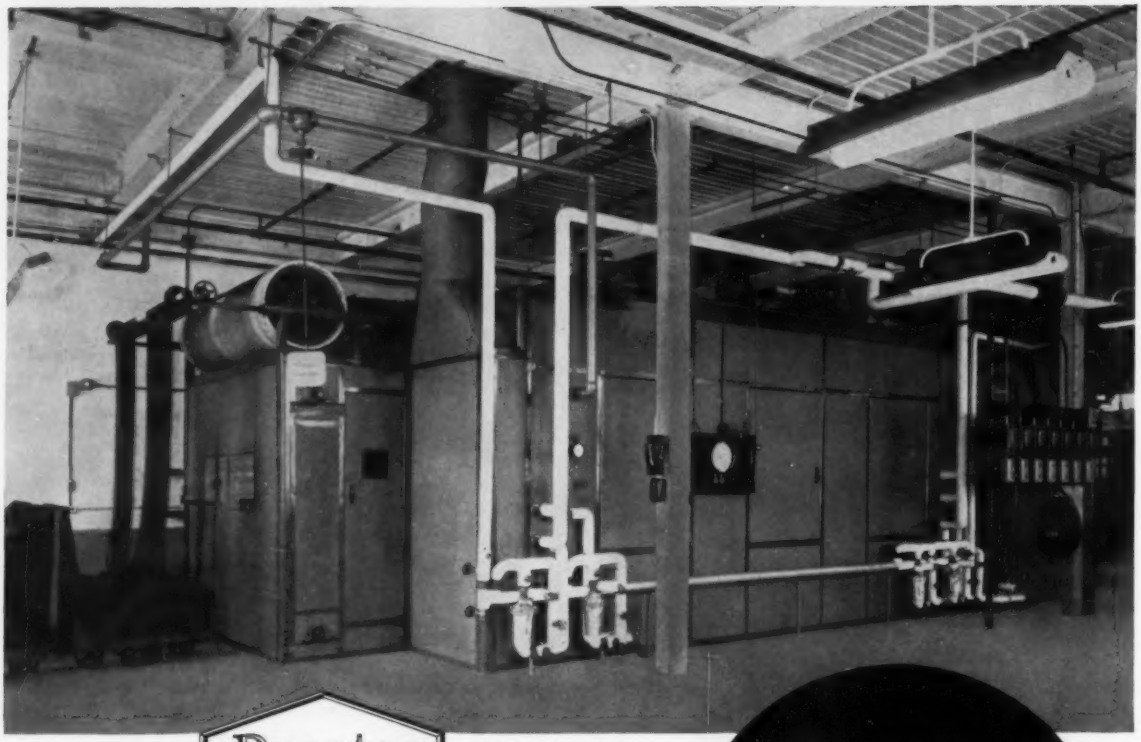
Let us tell you how the Strobotac can help you — Write for the G-R Strobotac Bulletin

STROBOTAC®

Manufactured and Sold Exclusively by . . .

GENERAL RADIO Company 275 Massachusetts Avenue, Cambridge 39, Mass

CURE TEXTILE FABRICS AT A PROFIT!



Installation view of Proctor Loop Curer

THE Proctor

LOOP CURER and ROLLER CURER

These rugged, high-capacity machines feature the latest design and construction improvements—all geared to increase your profits. Units can be combined with existing equipment to meet your exact requirements. For fabrics that will not handle properly in loop, the roller curer is recommended. Recent developments for this machine also include improved air distribution, flexibility in holding capacity, and no-stretch operation. These machines are the result of long experience in supplying machinery to the textile industry. For the complete story of the profit-making opportunities offered by Proctor, write today for latest information bulletins.

- GREATEST CURING UNIFORMITY
- IMPROVED DESIGN
- MAXIMUM CAPACITY WITH MINIMUM POWER REQUIREMENTS
- FLEXIBILITY OF OPERATION
- SIMPLIFIED INSTALLATION

PROCTOR & SCHWARTZ EQUIPMENT FOR THE TEXTILE FIELD

AUTOMATIC BLENDING SYSTEMS • WEIGHING FEEDS • PICKERS • SHREDDERS • BALE BREAKERS • SYNTHETIC CARDS • GARNETTS • DRYERS FOR FIBROUS MATERIAL • YARN DRYERS • HOT AIR SLASHER DRYERS • CLOTH CARBONIZERS • ROLLER DRYERS AND CURERS • LOOP AGERS FOR PRINT GOODS • TENTER HOUSINGS • OPEN-WIDTH BLEACH SYSTEMS FOR WOVEN FABRICS • MULTIPASS AIRLAY DRYERS • NYLON SETTING EQUIPMENT • CON-O-MATIC WASHERS • CONTINUOUS BLEACH SYSTEMS FOR PRODUCING TUBULAR KNITS • EQUIPMENT FOR "PEDMANIZED" ® SHRUNK-TO-FIT FABRICS • CARPET DRYERS

Proctor

PROCTOR & SCHWARTZ, INC. Philadelphia 20, Pa. Manufacturers of Textile Machinery & Industrial Drying Equipment.

your "rolling pipe line"

More than 2600 Olin Mathieson tank cars are in service every day shuttling between a score of production points and our customers to assure dependable delivery of Mathieson Chemicals.

In a sense, they form a "pipe line" connecting major consuming and producing areas. And, they perform the important function of balancing out local shortages and surpluses.

If you're ever caught short of an essential chemical raw material, the flexibility of a multi-plant producer can prove invaluable. Our "pipe lines" carrying caustic, chlorine, ammonia, sulphuric acid, methanol and organics may be the answer to your supply problems. Talk it over with an Olin Mathieson representative soon.

MATHIESON CHEMICALS

OLIN MATHIESON CHEMICAL CORPORATION

INDUSTRIAL CHEMICALS DIVISION • BALTIMORE 3, MD. 3954

MATHIESON

INORGANIC CHEMICALS: Ammonia • Bicarbonate of Soda • Carbon Dioxide • Caustic Potash • Caustic Soda • Chlorine • Hydrazine and Derivatives Hyprochlorite Products • Muriatic Acid • Nitrate of Soda • Nitric Acid • Soda Ash • Sodium Chlorite Products • Sulphate of Alumina • Sulphur (Processed) Sulphuric Acid • ORGANIC CHEMICALS: Ethylene Oxide • Ethylene Glycols • Polyethylene Glycols • Glycol Ether Solvents • Ethylene Dichloride • Dichloroethylether Formaldehyde • Methanol • Sodium Methylate • Hexamine • Ethylene Diamine • Polyamines • Ethanolamines • Trichlorobenzene • Polychlorobenzene • Trichlorophenol

MICRO precision switches

...THEIR USE IS A PRINCIPLE OF GOOD DESIGN

There are USES UNLIMITED for MICRO precision switches on textile machinery

Thousands of textile machines have been given a new lease on life, made more automatic, more productive and safer by the installation of one or more MICRO precision switches.

Whether you are a manufacturer of new textile equipment or whether you are a plant operating man, it will pay you to know about these extremely reliable, long-life precision switches.

Illustrated on this page are just a few types of these switches which have proved to be valuable in control of textile machinery as limits, safeties and interlocks.

Here are just a few of the many uses mill owners have found for these versatile precision switches:

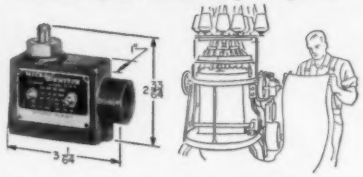
As trumpet stops for combing heads
•
To prevent needle breakage
•
To eject unfilled quills automatically
•
To control position of pressure roll
•
As thread breakage detectors
•
To position clamps on cloth stretcher
•
As selvedge build-up control
•
As carriage movement controls

To stop bobbin winding when bobbin fills
•
To stop motor when gear box is opened
•
To control tension of cloth
•
To control cloth position
•
As thread run-out detector
•
As fabric thickness detector
•
And many others

Stocks of many types of MICRO SWITCH precision switches for plant installations are available from distributors located in key cities for your convenience. For advice on just the switch most suitable for your application, experienced MICRO SWITCH engineering service is available for consultation. Call the branch office nearest you. Distributors and branch offices are listed under "Switches, Electric" in the Yellow Pages.

Mills find profits by making machinery safer—more automatic

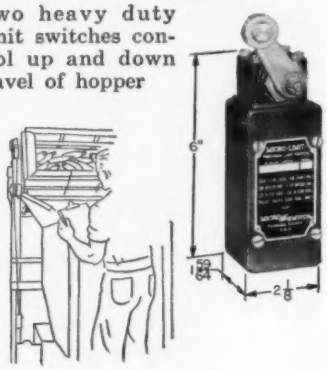
Saves $50 per knitting machine per year



Two MICRO precision switches replace mechanical stops—protect needle beds.

Make quill loading an automatic job

Two heavy duty limit switches control up and down travel of hopper



Signals when bobbin needs a refill

As bobbin empties, bar touches switch to signal for refill.

Send for new catalog 83 on industrial switches

MICRO SWITCH

A DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR COMPANY

In Canada, Leaside, Toronto 17, Ontario • FREEPORT, ILLINOIS

SODYECO

THE INVENTOR — AND THE ONLY PRODUCER
IN THE WHOLE WIDE WORLD OF

DENIVAT EVERBLUE

"THRU AND THRU" DYE

FOR "VAT-DYED" BLUE DENIM

CONGRATULATES

LANE COTTON MILLS

ON THEIR 100th ANNIVERSARY

LIQUIDATE YOUR DYEHOUSE TROUBLES- CALL

The Pioneer Dyestuff Producer in the Textile South

SOUTHERN DYESTUFF CORPORATION

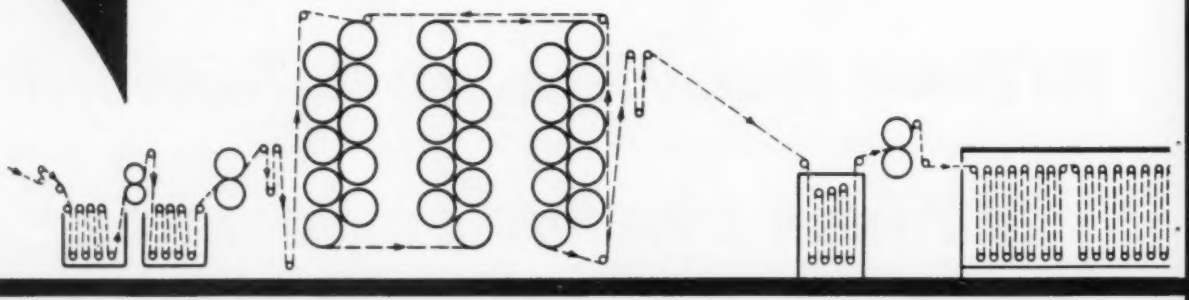
CHARLOTTE P. O. Box 10098 NORTH CAROLINA

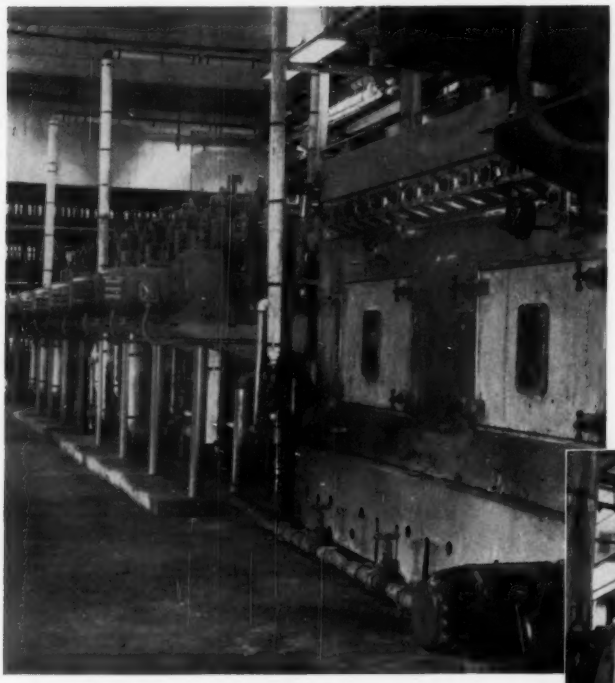
ALL SIX WARP DYEING STEPS

1. WASHING
2. DRYING
3. DYEING
4. STEAM SETTING COLOR
5. WASHING
6. DRYING

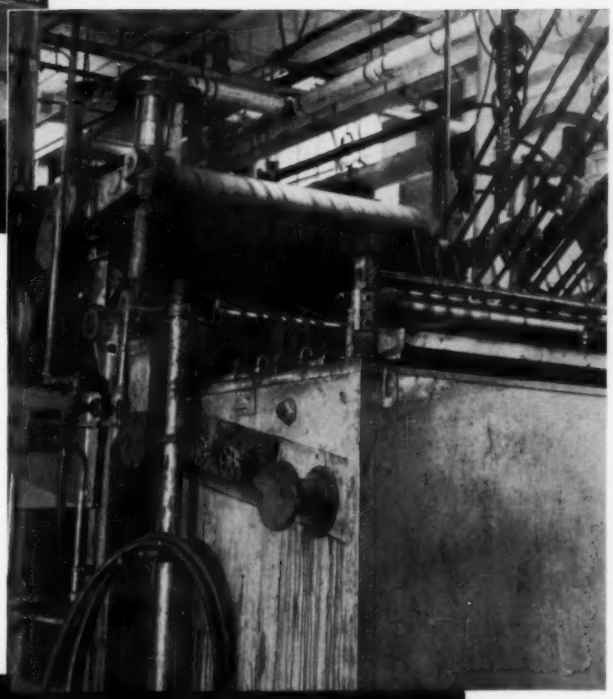
IN A SINGLE OPERATION

AT SPEEDS UP TO 50 YARDS PER MINUTE





Morrison Continuous Warp Dyeing Range at Lane Cotton Mills Co.



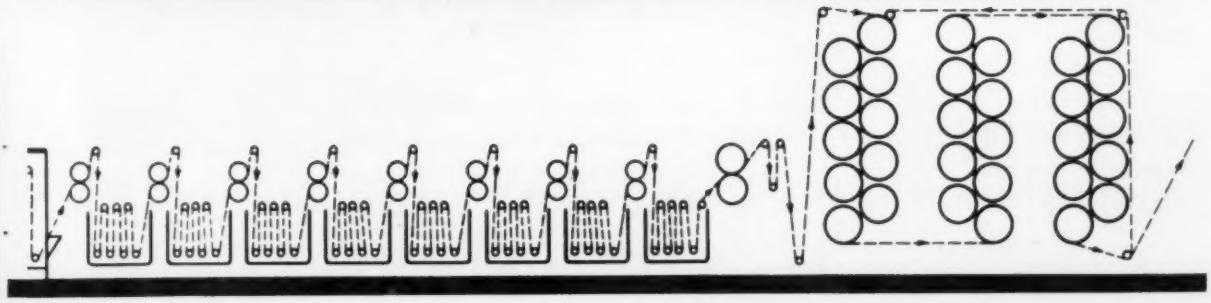
This amazing new Morrison warp dyeing range performs 6 operations at one time in an uninterrupted sequence. It washes the gray warp, dries it, dyes it in a Williams unit, steam sets the color, washes the cloth, and dries it on dry cans! In one step gray warps are made ready for the loom.

And all this done at the rate of up to 50 yards per minute!

For complete details of the Morrison continuous warp dyeing process, write today.

MORRISON MACHINE CO.

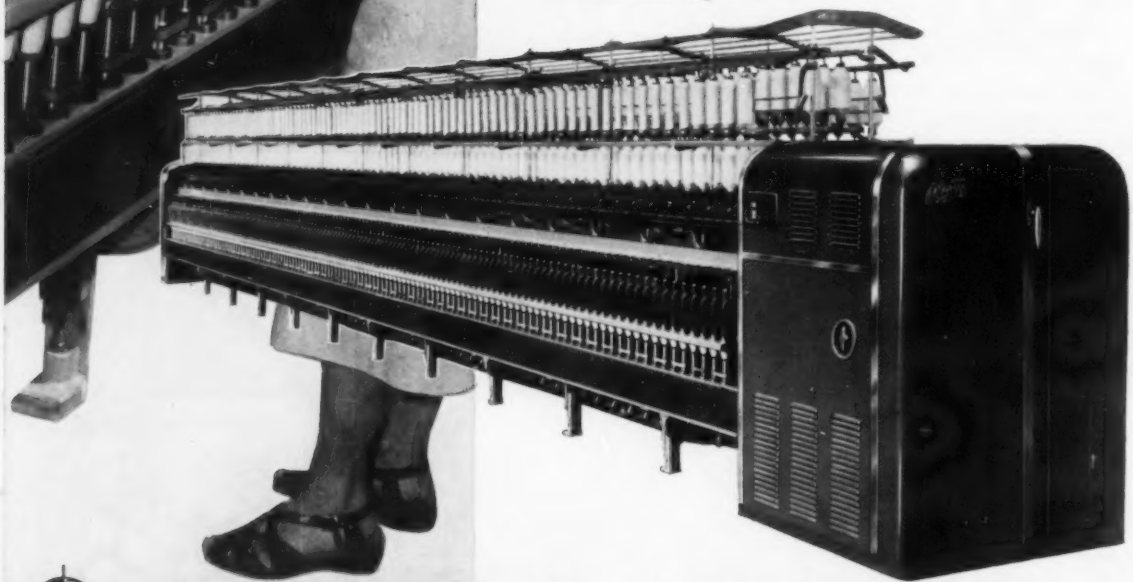
1171 MADISON AVENUE, PATERSON, NEW JERSEY



The new Platt MR3 ring frame will reduce YOUR spinning costs

It has ALL the advantages

1. Increased speeds and productions
2. Inherent flexibility — all counts — all fibres
3. Higher overall efficiencies
4. Reduced operative work loads
5. Lower running and maintenance costs
6. Simplicity a keynote in design
7. Remarkable cleanliness
8. All lifts up to 12″



ATKINSON, HASERICK & CO., INC.
ENGINEERS & AGENTS FOR THE
WORLD'S LEADING TEXTILE MACHINERY
FRAMINGHAM, MASS. · CHARLOTTE 2, N. C.

PLATT BROS. (SALES) LTD.
OLDHAM, ENGLAND
MARKETING THE TEXTILE MACHINERY MADE IN THE WORKS OF
PLATT BROTHERS & CO. LTD. PLATTS (BARTON) LTD.
HOWARD & BULLOUGH LTD. DOBSON & BARLOW LTD.

VERMONT SPOOL & BOBBIN CO.

EXTRA

INSURANCE AGAINST BASE SPLITTING

THE *NEW*

"ALUMINOX"

COVERED BASE BOBBIN!

Stop needless and costly time-outs from production due to base-splitting! Install Vermont Spool and Bobbin Company's new bobbins. With "Aluminox" covered bases, they will long outwear ordinary bobbins . . . boost your profits!

Let one of our representatives give you details of this great new bobbin . . . and explain the other extra features of our spools and bobbins that mean smoother, more economical operation for you! We'll tailor-make spools and bobbins to your specifications.

FIVE OTHER FEATURES YOU WANT

★ TRUE, FREE-RUNNING ★ LONGER LIFE
★ BRASS BUSHINGS ★ COMPETITIVE PRICE
★ SKILLED WORKMANSHIP

Represented in the East by Atkinson, Haserick & Co., Boston 6, Mass., Watson & Desmond, P.O. Box 1954, Charlotte, N. C.

Vermont SPOOL AND BOBBIN CO.

234 SO. CHAMPLAIN ST. — BURLINGTON, VERMONT — SUPERIOR SPOOLS AND BOBBINS SINCE 1906

Textile Notes on Corn Products

When operating temperatures and size stability are critical ... use

NEW TEN-O-FILM® STARCHES

Fast cooking, easy desizing make these new corn starches a favorite for synthetics and combed cottons

Ten-O-Film has the stability and ease of removal necessary for spun synthetic yarns and blends, for combed cotton yarns and for worsteds.

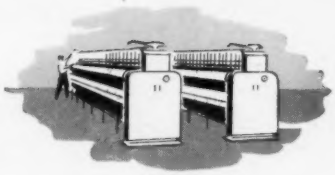
Despite prolonged heating and circulating you can count on Ten-O-Film to maintain its viscosity at slashing temperatures. And when temperatures fall, it will resist gelation, even far below normal operating levels. If necessary, these new starches can be used with excellent results when humidity conditions in the weave room are lower than normal.

Ten-O-Film cooks quickly. You can have a completely stable size in 30 minutes after it reaches the boil. This product provides high film strength, flexibility and stability in a complete range of fluidities.

Ask the man from Corn Products. Ready to assist you in any way, he has at his disposal the most complete laboratory and technical facilities in the industry. The man from Corn Products can also provide engineering service for the installation of bulk-handling equipment. Write or phone for information, there is no obligation.

CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York 4, N. Y.

Corn Products makes these famous starches for the textile industry—
Eagle • Foxhead • Globe • Hercules • Ten-O-Film • Globe Dextrines & Gums



"...Higher loom speeds made lubrication difficult!"

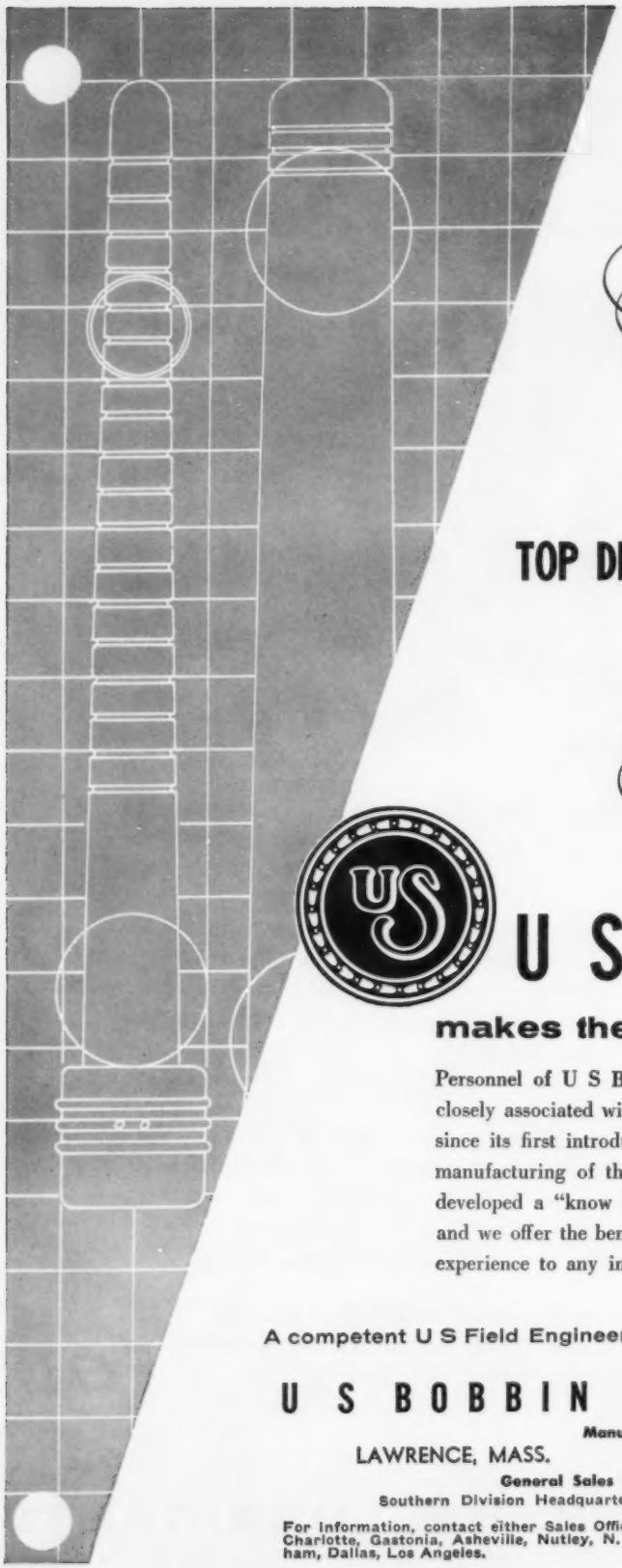
When a large Southern weaving plant recently had a problem in loom drive lubrication, Sinclair's Representative V. V. Motley, Jr. was asked for a recommendation. He reports:

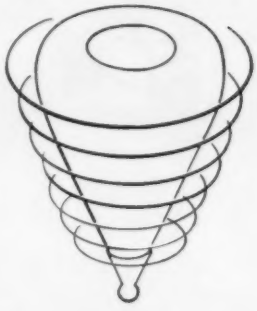
"This plant had experienced difficulty in lubricating the gear trains that drive the looms. The reduction gears are shielded and the pinions rotate at about 1700 RPM. A grease could not be applied readily or satisfactorily; and, an oil did not provide the retention necessary for the desired lubrication period. In desperation, mixtures of oil and grease had been used in an attempt to lubricate the gears."

NEEDED: AN ADHESIVE OIL. Mr. Motley continues, "Having had experience with problems of this type, I recommended Sinclair DARTAC #15. I knew it would have the necessary body and adhesiveness needed to solve the problem. Trial runs at this plant were so successful that all four of the company's plants were switched to DARTAC" concludes Mr. Motley.

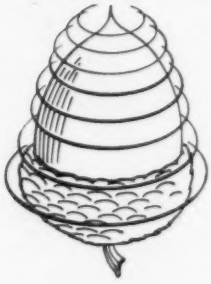
If you have a problem in textile lubrication, get the benefit of a Sinclair Representative's recommendation. Call a local Sinclair office or write to Sinclair Refining Company, 600 Fifth Avenue, New York 20, N. Y.

SINCLAIR TEXTILE LUBRICANTS





TOP DRIVE or ACORN DRIVE?



U S BOBBIN

makes the BEST of both!

Personnel of U S Bobbin & Shuttle Co. have been very closely associated with the Top Drive principle in the bobbin art since its first introduction to American mills. In the manufacturing of these quills and warp bobbins we have developed a "know how" of which we are justly proud . . . and we offer the benefits of this valuable accumulated experience to any interested mill.

A competent U S Field Engineer will contact you promptly, on request.

U S BOBBIN & SHUTTLE CO.

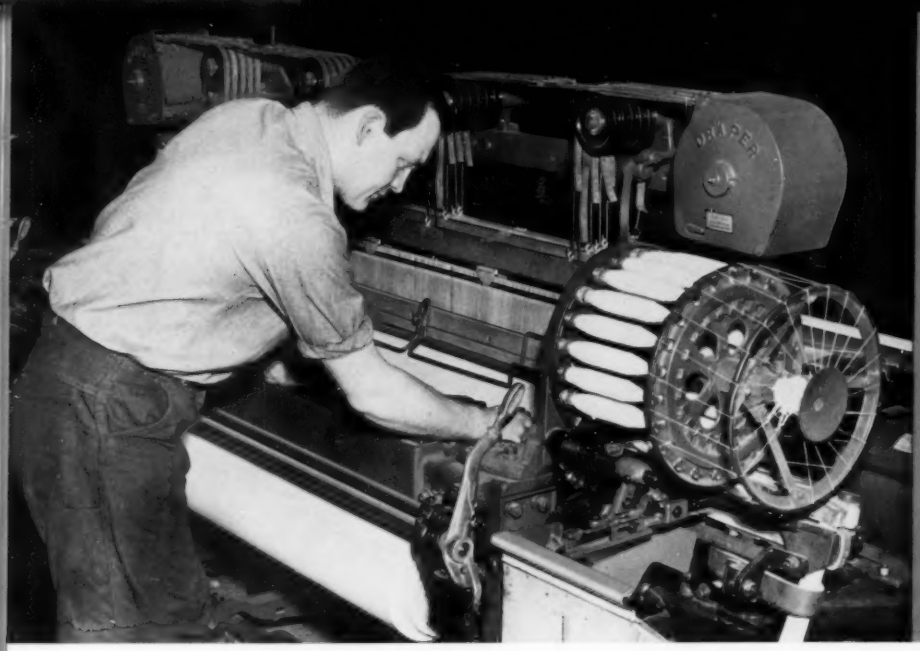
Manufacturing Plants

LAWRENCE, MASS. • GREENVILLE, S. C.

General Sales Office LAWRENCE, MASS.

Southern Division Headquarters: 428 Birnie St., GREENVILLE, S. C.

For information, contact either Sales Office; or our Technical Field Representatives located in Charlotte, Gastonia, Asheville, Nutley, N. J., North Attleboro, Mass. Supply Houses: Birmingham, Dallas, Los Angeles.



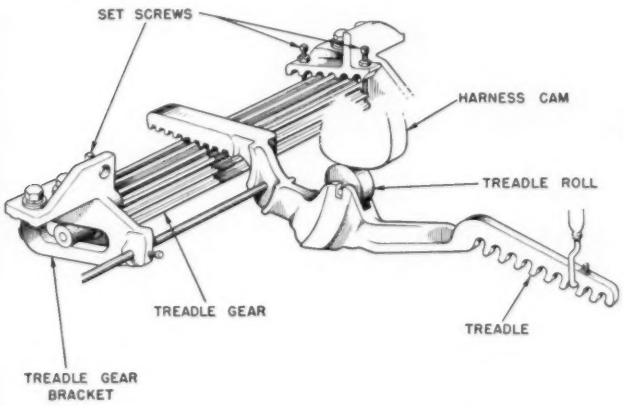
No. 10 of a Series

DRAPER LOOM FIXING

Setting Adjustable Treadles

Only Draper X, X-2, XD, XP and XK Model looms have been built with both regular (fixed) and adjustable Treadles.

Mills frequently wish to alter size of the warp opening to accommodate a change of weaves or size of shuttles. To do this, with older type regular treadles, required new cams.



Adjustable Treadles permit settings to give a larger or smaller shed **without purchasing new cams.**

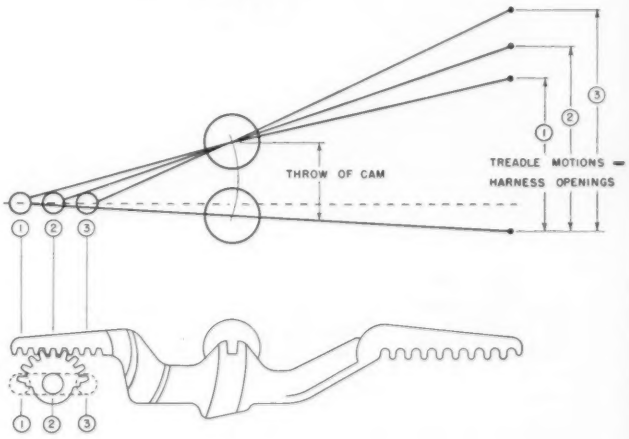
Adjustment is secured by means of a gear tooth construction on back end of Treadle which engages with a rack known as the Treadle Gear, on new looms, is set at a median point on the treadle teeth. The Treadle Gear may be moved either towards the front or back of the loom. This changes the fulcrum point of the Treadles and, consequently, the harness opening resulting from Treadle action while using the same set of cams.

Settings of the Treadle Gear are easily accomplished as follows:

Loosen fastenings in R.H. and L.H. Treadle Gear Brackets. Rotate Treadle Gear, moving it to a position which gives the desired shed, and tighten fastenings.

Moving Treadle Gear towards front of the loom increases the shed opening.

Moving Treadle Gear towards back of the loom decreases the shed opening.



Position 1 gives minimum warp opening

Position 2 gives median warp opening

Position 3 gives maximum warp opening

NOTE: Construction illustrated is positioned by set screws.

DRAPER CORPORATION

Advertising Department (T. I. 10)
Hopedale, Massachusetts

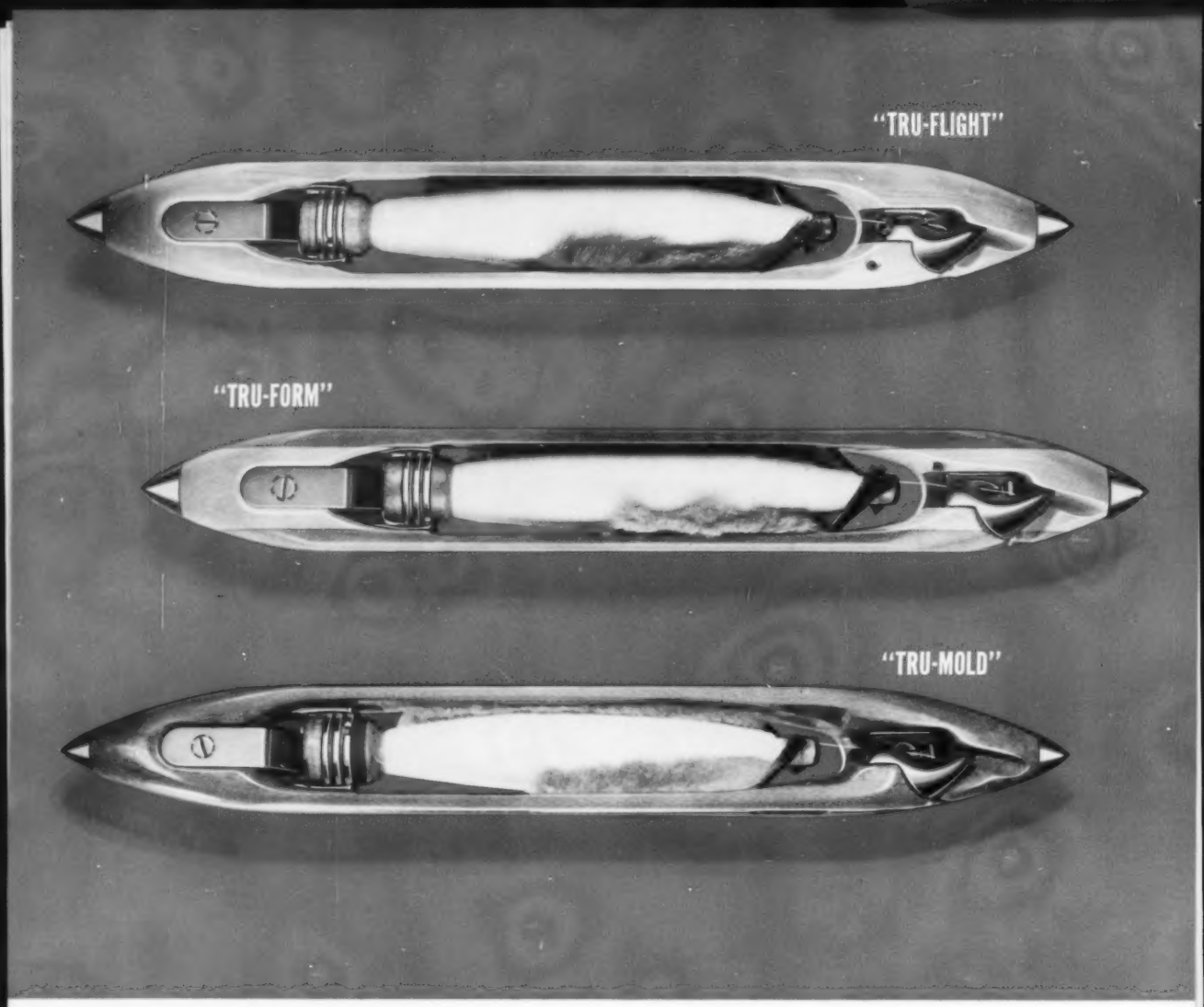
Please add my name to your "Setting Instruction" mailing list.

Name_____

Position_____

Company_____

Address_____



REDUCE WEAVING COSTS WITH DRAPER SHUTTLES

Longer shuttle life and *reduced maintenance* are two distinct ways in which Draper shuttles aid in lowering weave room costs. The desire to furnish a shuttle that will meet exactly the conditions under which the mill plans to use it has resulted in the manufacture of a wide variety of Draper shuttles.

"TRU-FLIGHT", "TRU-FORM", and "TRU-MOLD" shuttles incorporate the finest in materials and design. From all-dogwood to the completely new molded construction, each is engineered to offer *greater shuttle economy* and *improved loom operation.*

Lower *your* weaving costs . . . standardize on Draper shuttles, today.

DRAPER CORPORATION

HOPEDALE, MASS.

ATLANTA, GA.
GREENSBORO, N. C.
SPARTANBURG, S. C.

AMERICA'S LEADING SYNTHETIC DETERGENT

6 x 3 = 18

6 - 2 = 4

Simple Arithmetic made

2 + 2 = 4

3 x 4 = 12

Nacconol® SL

the largest selling liquid detergent in the textile industry

Many economy-minded mills are cutting handling time and costs with Nacconol SL. Being a liquid concentrate, it is easy and clean to use, requires no dissolving. Simply add water to secure the desired working concentration.

And remember this extra, you get more cleaning-power-per-dollar with Nacconol SL (based on an active ingredient basis compared with most dry products). Why not join the mills that are cutting production costs with Nacconol SL?

Other popular forms of Nacconol for wet processing include Nacconol DB, Nacconol DBX, Nacconol NR and Nacconol NRSF. Send for your sample and see for yourself how effective Nacconol SL really is.

* Alkyl Aryl Sulfonate

Nacconol

NATIONAL ANILINE DIVISION

ALLIED CHEMICAL & DYE CORPORATION

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Boston 14, Mass., 150 Causeway St. CApitol 7-0490
Providence 3, R.I., 15 Westminster St. DExter 1-3000
Philadelphia 6, Pa., 200-204 S. Front St. LOmbard 3-6382
Los Angeles 58, Cal., 4814 Loma Vista Ave. LOgan 8-2257
San Francisco 4, Cal., 235 Montgomery St. YUkon 2-6840
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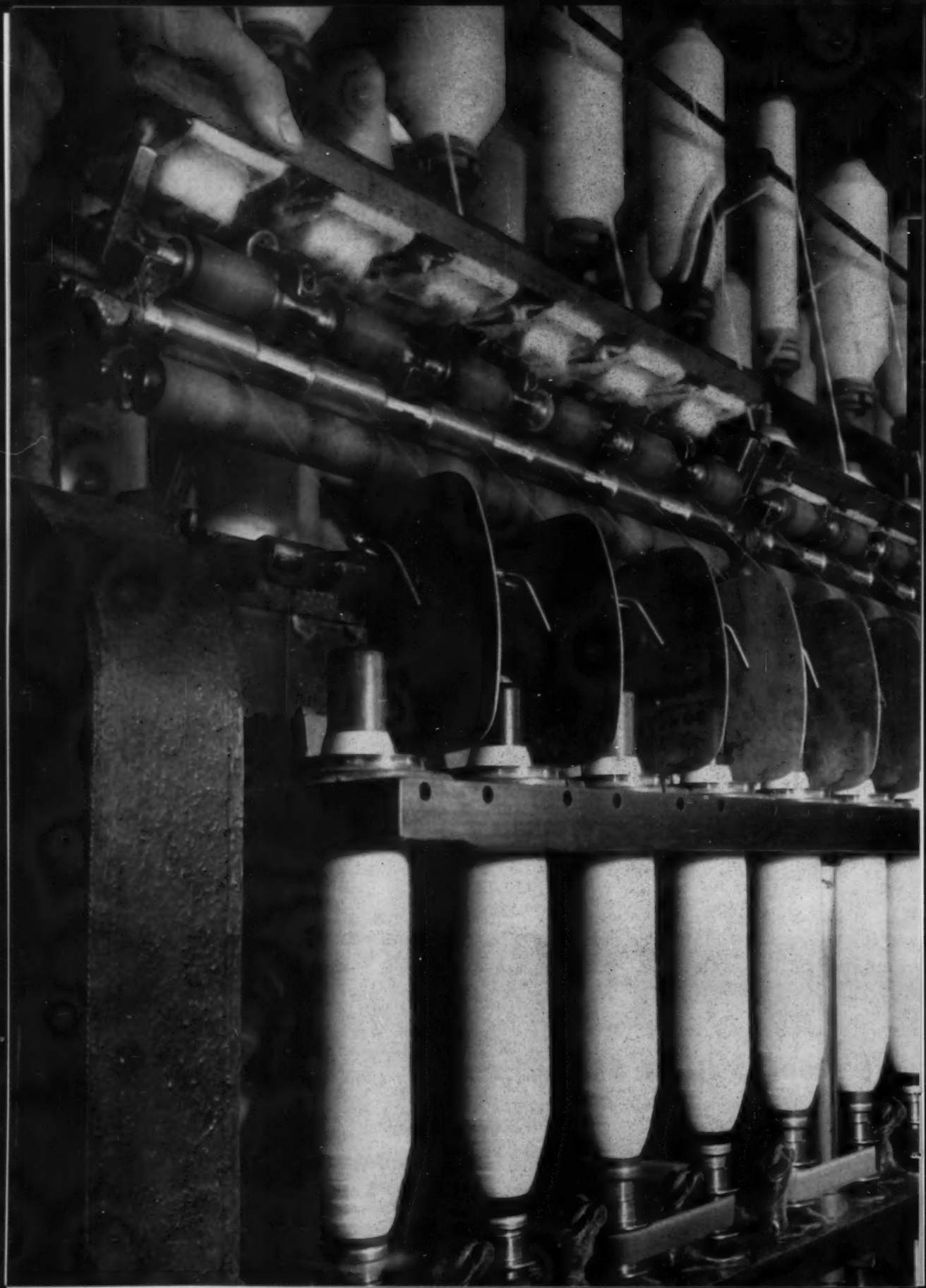
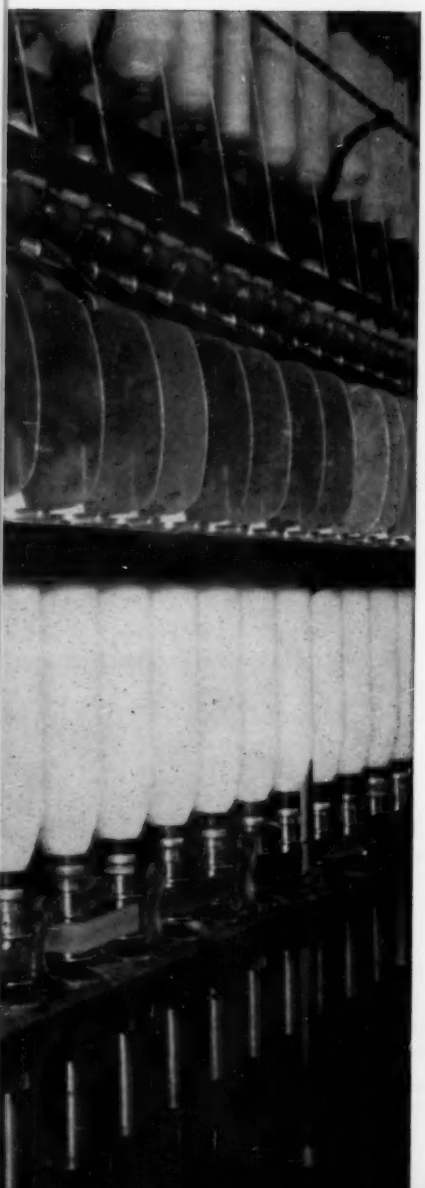
Allied Chemical

Samples promptly sent on request.



Lap ups reduced 4 to 1 with DAYCO cots



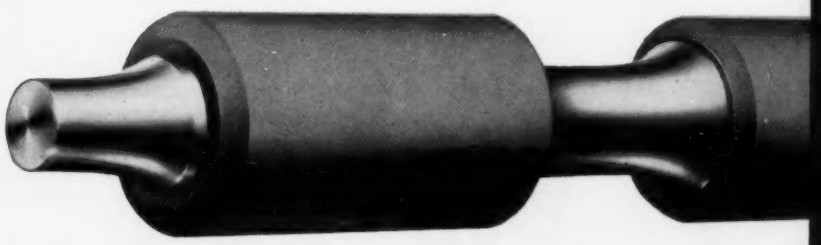
That's the record for one southern mill* after extensive tests of Dayco Cots. Regardless of weather—hot, cold, muggy or rainy —high humidity or low, Dayco Cots minimized lapping 4 to 1 over other cots.

Even in "dog days", when control of humidity was next to impossible, Dayco Cots stayed dry, never becoming gummy or sticky. Principal reason is the exclusive Dayco construction. Made of finest synthetic rubber compounds, Daycos have no large rough fillers that cause excessive lap ups and ends down or ingredients that become soft and sticky on highly humid days. Daycos are saving a lot of downtime for mills everywhere.

Why don't you make a money-saving test? Write Dayton Rubber Company, Textile Div., 401 South Carolina National Bank Building, Greenville, S. C.

* *Name on request*

© D. R. 1956



Dayton Rubber 51 YEARS OF PROGRESS

Dayco and Dayton Thorobred Products for Better Spinning and Weaving

Many strange fibers are "meeting on the frames" today, as new developments continually increase the number and variety of synthetics and blends.

Controlling these new fibers and filaments in spinning or twisting can be tricky business. And you seldom have much time to experiment. Let Victor *experience* take the place of costly trial-and-error.

Victor "keeps a step ahead" by working with the producers during development of new synthetics. That's why, when they reach you for production, Victor is prepared to help you overcome any new processing problems they present.

When you need help to get top-quality and trouble-free production—with synthetics, blends, or natural fibers—call in a Victor Service Engineer. Write, wire, or phone the nearest Victor office for prompt service.

VICTOR RING TRAVELER COMPANY

PROVIDENCE, R. I. . . . 20 Mathewson Street . . . . . Tel. DExter 1-0737

GASTONIA, N. C. . . . 914-916 East Franklin Ave. . . . Tel. UNiversity 5-0891

Keep a Step *ahead with*

VICTOR Ring Travelers

Your Investment Returned 100%

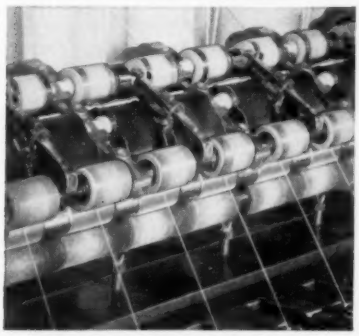
...IN 3½ YEARS!*

FOR BACK AND MIDDLE LINES

CLEANDRAFT NYLON-BEARING TOP ROLLS

CLIMAX BALL BEARING TOP ROLLS

CLIMAX-CLEANDRAFT INSTALLATION



CLIMAX-CLEANDRAFT Top Rolls shown above are part of an installation in continuous operation for over two years at HOOSAC MILLS, New Bedford, Mass. Hundreds of similar installations give proof positive that CLIMAX-CLEANDRAFT Top Rolls represent *an investment that pays you big dividends . . . . returns high yields!*

4½ MILLION TOP ROLLS ...and 14 YEARS of PERFORMANCE

. . . has provided irrefutable proof that the use of CLIMAX and CLEANDRAFT Non-Lubricating Top Rolls eliminates top roll oiling . . . cuts maintenance costs . . . reduces picking time in half (extends the picking cycle up to 8 times!) . . . decreases yarn variation on a continuous basis. Their effective value lies in increased spinners work loads, cleaner frames, better quality and uniformity of yarn. RESULT? *Economies thus effected give you a 100% return on your investment — IN 3½ YEARS!*

*Based on confidential tests under actual mill operation

for further information write or phone

PS PRODUCT SALES, INC.

21 VERNON STREET, WHITMAN, MASS.

SALES AND SERVICE OF • CleanAlign Saddles

Complete Service Facilities and Staff Located Strategically for Immediate Action, as Follows:—

SERVICE SHOPS:
Whitman, Mass. and Greenville, S. C.

J. H. CANADY, 3344 LeBron Avenue, Montgomery, Ala., serving Ala., Miss., Ga., La., Ark., Tex., Okla., Tenn.

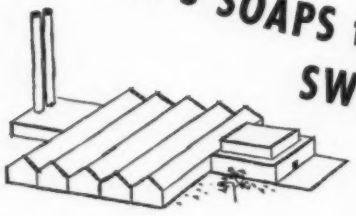
GEORGE W. PARKINSON, Product Sales, Inc., 3 Hammond St., Greenville, S. C., serving So. Car.

RAYMOND L. McCAULEY, 3020 Manor Road, Charlotte, N. C., serving Virginia, No. Carolina.

FOR EUROPEAN SERVICE:
VICTOR BEECROFT, 54 Boroughgate, Otley, Yorkshire, England.

Foreign Agents in The Principal Textile Centers Of The World.

SWIFT'S SOAPS treat fine fabrics RIGHT . . . SWIFT'S service treats YOU right!



Every bag, drum, truckload, or carload of Swift's soaps reflect over 50 years of day to day experience in making soap for the textile industry. The know-how has made Swift & Company a leader in supplying soaps that treat fine fabrics right.

There is a soap for your needs and these are available from strategically located stocks throughout the country. Swift's service treats *you* right and you can be assured of courteous and speedy service. You can also be assured of the *right* product for your needs whether it be for dyeing, fulling, or scouring. Write for details and remember . . .

ONE TRIAL IS BETTER THAN A THOUSAND CLAIMS

Here are but a few of the fine Swift & Company Soap products available:

VERTEX FLAKES
Low titer. Made from the highest grade red oil. The actual soap content is 94% and the titer range is 10-12° C. Vertex is highly soluble in low temperature operation.

T-25
Designed especially for the textile industry. Has an actual soap content of 92% and a titer range of 25-28° C. Ideal where a medium titer product is desirable.

SOLAR DETERGENTS
Granule, free flowing, an-ionic. Liquid, 100% active non-ionic. Ideally suited for use in textile operations.

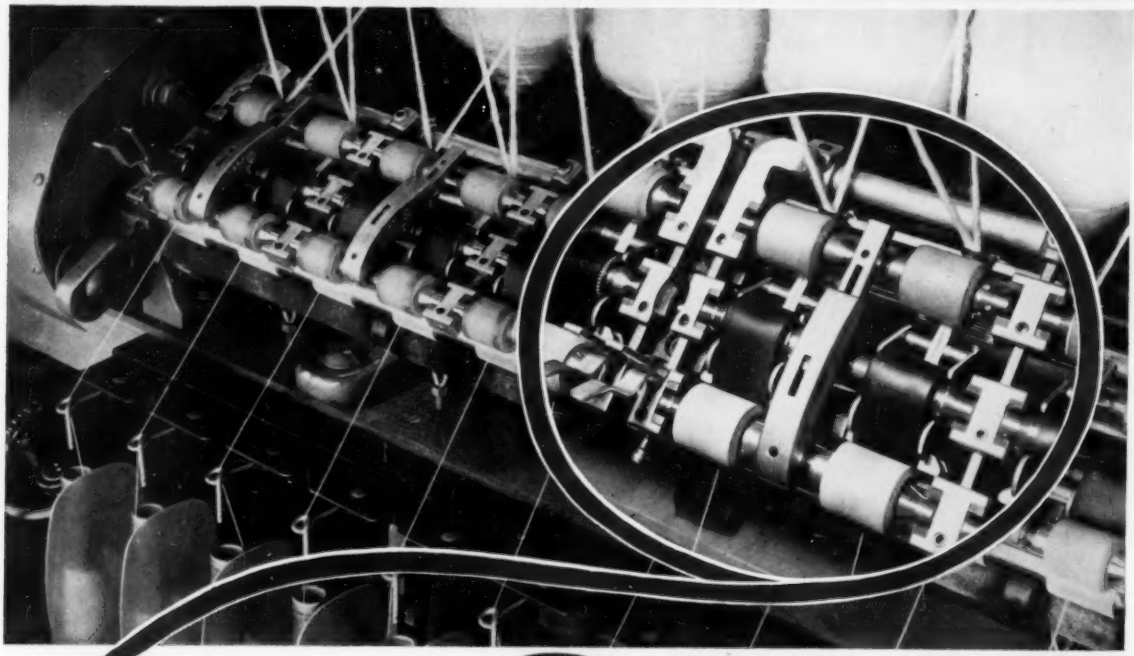
WHITE RIBBON
Chips & Powder
A high titer product. Contains neutral soaps in the range from 41-42° C. Recommended where higher temperatures are employed. Chips have a soap content of 88%—powder, 92%.

S-20

SWIFT & COMPANY
SOAP DEPARTMENT
4115 Packers Ave. • Chicago 9, Illinois

Swift
101 ST YEAR

To Serve Your Industry Better



SAVE

ON PRODUCTION COSTS AND INCREASE QUALITY

WITH THE

BOULIGNY

TRU-DRAFT

- No gradual build-up of drag as experienced with anti-friction rolls
- More uniform yarn—due to concentricity and free running
- 5/8" dia. rolls afford good cushion — no buffing problems
- Low bearing replacement cost
- Reduced cleaning
- Reduced oiling
- Perfect alignment

2,769,500 spindles are now operating with Whitehead Permalube cap bar nebs and saddles and Bouligny hardened steel rolls.

The Mills in which this equipment is installed report a 30 to 40% return on their investment.

The Bouligny Tru-Draft System is now complete from roller beam up—with Drafts up to 50.

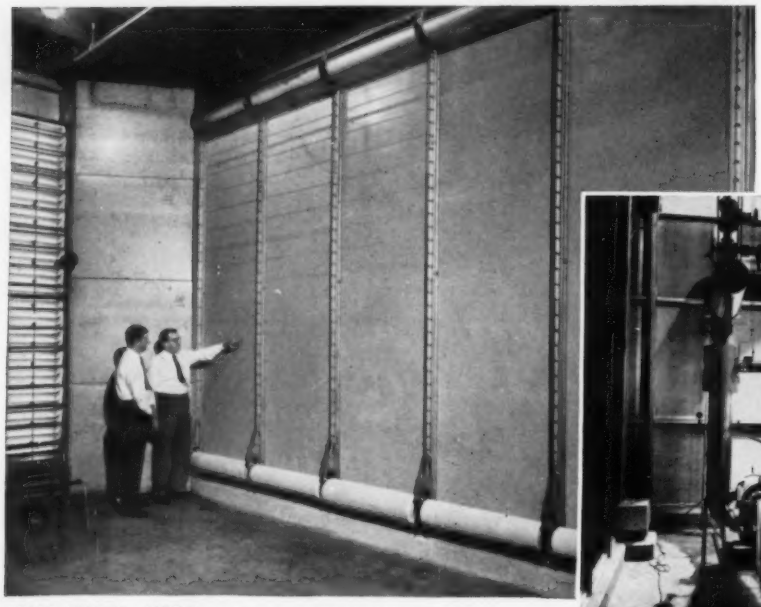
Our trained technical staff can assist you on any spinning problem.

HARDENED STEEL ROLLS • ROLLER STANDS • PERMALUBE NEBS AND SADDLES • CRADLES • COMPOUND GEARING
CYLINDERS • CYLINDER BALL BEARINGS • BALL BEARING TENSION PULLEYS • LIFTER RODS AND BUSHINGS
PERMALITE SEPARATORS

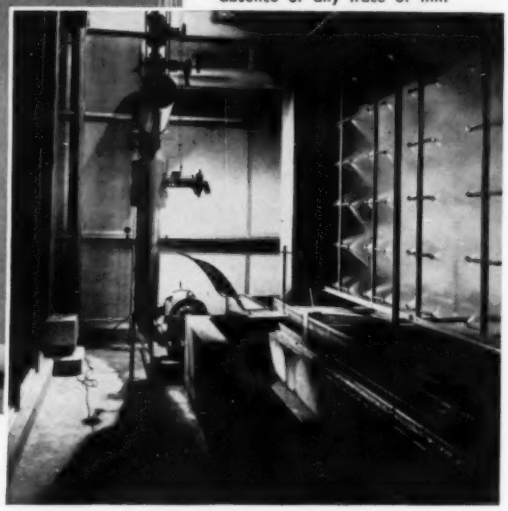
the BOULIGNY COMPANY

DIVISION OF R. H. BOULIGNY, INC.
CHARLOTTE, N. C

GREENWOOD MILLS
Takes LINT *Out of Circulation*



BEHIND THE SCENES. A view of the air washers, protected by AUTO-AIRMAT installation pictured. Note extreme cleanliness of washers and absence of any trace of lint.



LINT STOPS HERE. A typical AUTO-AIRMAT installation at Greenwood Mills' new Durst plant. It's one of eleven providing complete lint protection for the plant's air conditioning system installed by Carrier Corporation.

Auto-AIRMAT filters supply 1,320,000 cfm of clean air to Durst plant at Greenwood, S.C.

A plant producing a million yards of cotton cloth per week stirs up plenty of lint—lint that could easily "gum up" air conditioning systems and add many costly hours of overtime maintenance. But lint was "voted out" at the planning stage of Greenwood Mills' new Durst plant. Complete lint protection was built-in.

All eleven air conditioning systems (totalling 1,320,000 cfm) installed by Carrier Corporation's Atlanta office were equipped with AAF AUTO-AIRMAT filters. These automatic, self-cleaning filters protect the air washers by cleaning both outside intake air and the re-circulated air to carding, spinning, weaving and cloth rooms.

The AUTO-AIRMAT is the *only* filter that removes lint fibers from the air and cleans itself automatically! The Airmat media, installed in roll form at top of unit, becomes a moving filter curtain that is re-rolled at bottom with its lint load. Curtain movement is entirely automatic, with clean media being introduced only in sufficient quantity to keep resistance at proper level. And the lint is wrapped up in the roll for easy disposal! For complete information, call your local AAF representative or write direct for Bulletin 234.

Herman Nelson Unit Blowers

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AAF herman nelson

American Air Filter COMPANY, INC.

275 Central Avenue, Louisville 8, Kentucky
American Air Filter of Canada, Ltd., Montreal, P. Q.

BETTER AIR IS OUR BUSINESS

Illinois Steam Heating Specialties

Air Filters and Precipitators

Chicago, Illinois . . . where Dow caustic serves alkali formulators.

DOW

wherever you're producing

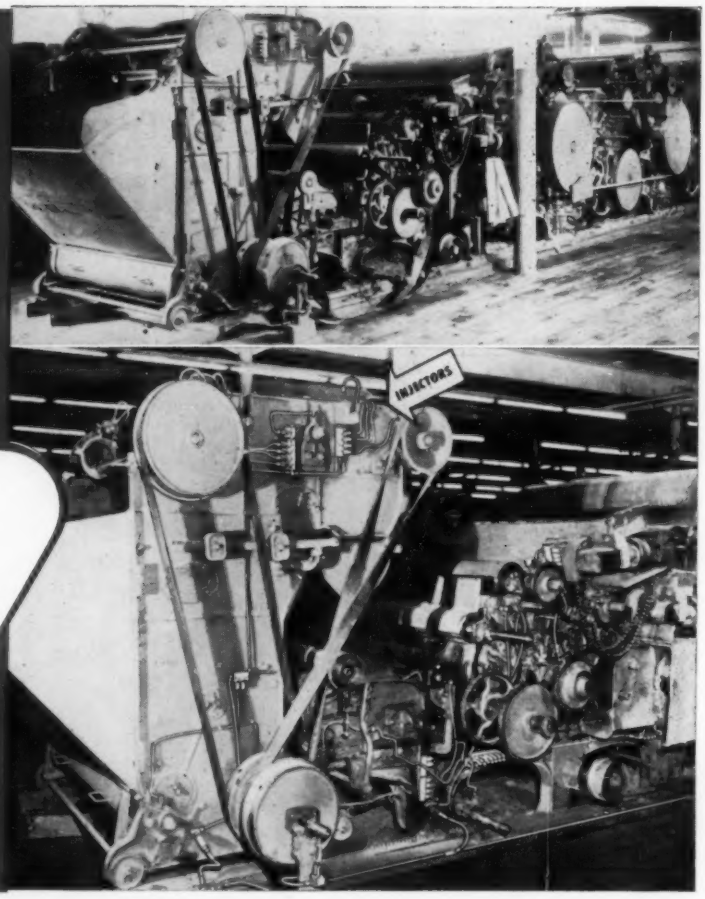
DEPENDABLE CAUSTIC SODA DELIVERY IS ASSURED FROM DOW

Dow is the one producer, you know, supplying caustic soda to industry everywhere. Wherever you produce, you're *sure* of getting rapid, dependable service from Dow.

The *three* modern Dow plants and *six* additional shipping terminals . . . stretching from Bayonne, New Jersey to Los Angeles, from Chicago to Freeport, Texas . . . start the order to you immediately on your teletype, wire or call. Ocean-going tankers, inland barges, tank cars and tank trucks . . . the full facilities of the industry's most extensive and flexible distribution network go to work without delay, getting Dow caustic to you *now*.

Then, too . . . Dow customers benefit from continual process research, stringent quality control in plant and in transit, prompt field technical service. Does Dow have *your* order? THE DOW CHEMICAL COMPANY, Dept. AL 756F, Midland, Michigan.

you can depend on DOW CHEMICALS DOW



Production Efficiency Sharply Increased at this New Hampshire Woolen Mill*

*Name on request

because **7,000 CARD BEARINGS ARE ACCURATELY AND ADEQUATELY LUBRICATED . . . *Automatically*** by ***Lincoln*** Centralized Lubricant Application Systems

As a test, a single Lincoln system was first tried on just one of the Mulhouse Worsted Cards. The added efficiency, improved production and lower maintenance costs were so obvious that now *all 35 Cards* in the mill are being equipped with Lincoln Centralized Lubrication Systems.

Each group of five Cards will be served by one time clock controlled pump. With the completed system, automatic lubrication at pre-determined intervals will be provided to more than 7,000 bearings on the 35 Cards.

FOR HELP IN WINNING THE FIGHT TO MAINTAIN NET . . . do as so many other mill men have done . . . investigate the increased yield and operating efficiency made possible by Lincoln Centralized Lubricant Application Systems to provide . . .

- THE RIGHT LUBRICANT...
- IN THE RIGHT QUANTITY...
- AT THE RIGHT TIME...

Automatically!

FREE . . . send for your copy of Catalog 80 showing the complete range of Lincoln Lubricating Systems. Experienced Lincoln engineers will gladly work with you in recommending the best system for your needs.

Lincoln
THE MOST TRUSTWORTHY NAME IN LUBRICATION EQUIPMENT

LINCOLN ENGINEERING COMPANY • 5702-15 Natural Bridge Ave., St. Louis 20, Missouri

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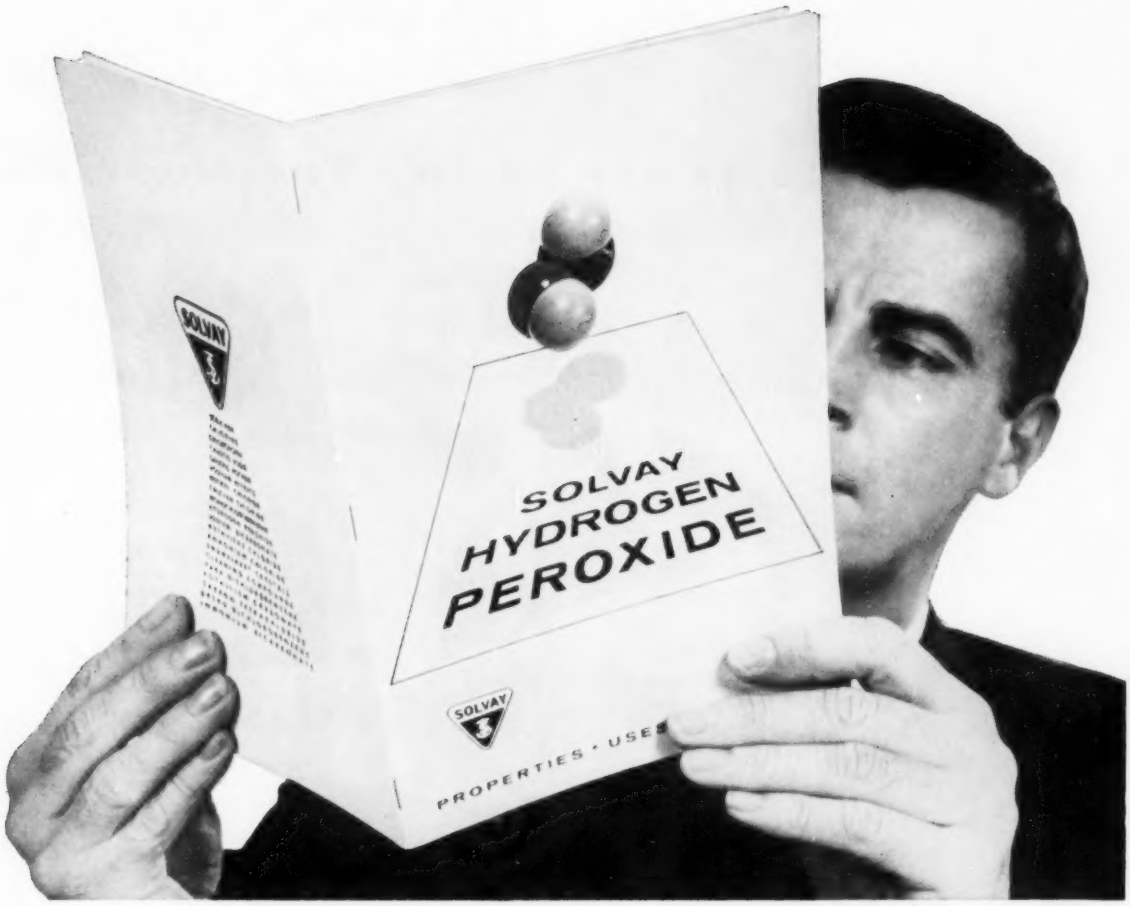

HERE'S THE NEWEST BOOK ON HYDROGEN PEROXIDE!

New 24-Page Book Gives You the Facts

Just off the press, this latest SOLVAY® factbook on hydrogen peroxide contains sections on physical properties, chemical reactions, uses, containers, handling and storage. The biggest section covers these important uses of SOLVAY Hydrogen Peroxide:

- Textile and Pulp Bleaching
- Synthesis of Organic Chemicals
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AMERICA'S FIRST PRODUCER OF ALKALIES — SOLVAY — 75th YEAR 1881-1956

Soda Ash • Snowflake® Crystals • Chlorine
Potassium Carbonate • Calcium Chloride
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ALLIED CHEMICAL & DYE CORPORATION
61 Broadway, New York 6, N. Y.

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Gentlemen. Please send me without cost or obligation*

☐ Your new book on SOLVAY Hydrogen Peroxide

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Company _____

Title _____

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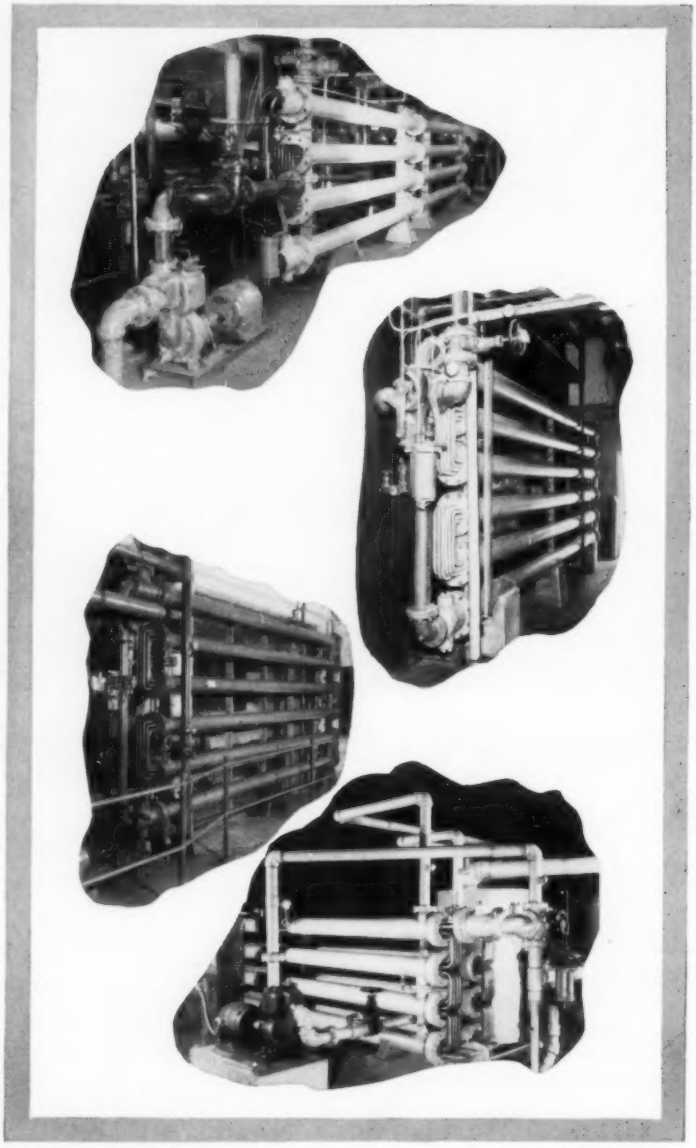
BQ-8

These systems are saving Textile Mills thousands of dollars annually

Saving money that one time poured down the drain is the job of these Bready Systems of Waste Heat Recovery. Even waste water with temperatures of 90° F or lower flowing through a Bready System of Waste Heat Recovery can result in fuel reductions of thousands of dollars a year.

Ludell custom-engineers Bready Systems of Waste Heat Recovery to each plant's needs. The systems are expansible to take care of future requirements. They are self-cleaning and nonclogging. Constant, normalized high heat reclamation is maintained by automatic backflushing and chemical recirculation.

Have you investigated the benefits of a Bready System of Waste Heat Recovery as it applies to your boiler plant? Write today for details or to arrange for Ludell to make a free engineering survey of your boiler system. There is no obligation, of course.



Ludell *Manufacturing Company*

5200 WEST STATE STREET • MILWAUKEE 8, WISCONSIN

Dept. TI,

MANUFACTURERS OF BREADY SYSTEMS OF WASTE HEAT RECOVERY

Du Pont "Leucosol"* Black G Paste

—a printing black with good fastness properties

This new black is an economical anthraquinone vat printing dye with superior light fastness. Crocking and markoff properties are good; running properties are excellent. You will find it builds well to jet shades. For further information, please write us: E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Dept., Dyes and Chemicals Div., Wilmington 98, Delaware.

*Reg. U.S. Pat. Off.

DU PONT

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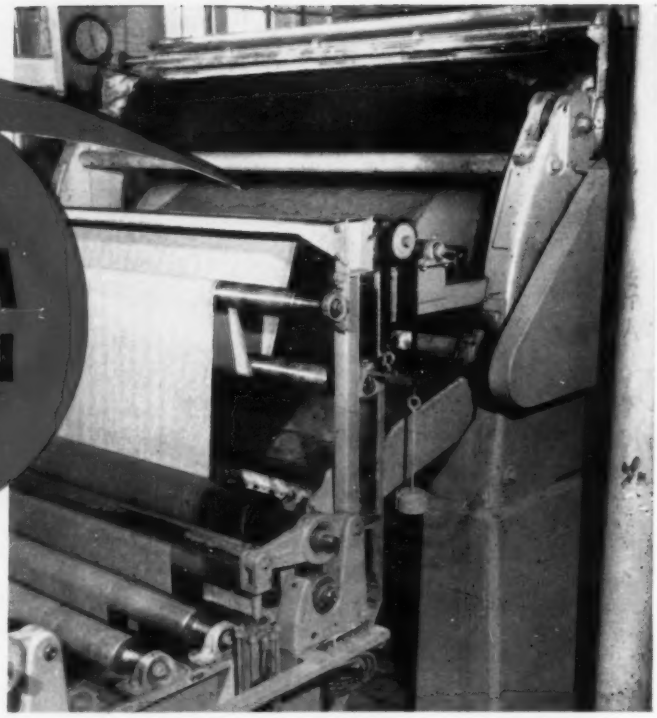
DU PONT DYES

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

for
UNIFORM EXTRACTION
here



Outstanding performance of MICROROK bottom roll in this carbonizer resulted in substantial economy of maintenance costs.

STOWE-WOODWARD
MICROROK® BOTTOM ROLLS

This ad first appeared in August 1954... Now after another two years of continuous operation the Microrok roll is still going strong. Think of the savings this could bring to Your Plant.

To provide the squeezing action which insures uniform acid extraction and eliminates shaded goods, the MICROROK roll above was installed in a carbonizer in a well known textile finishing plant.*

More than 2 years of round-the-clock operation have demonstrated exceptional performance. Its unusual wearing qualities were proved when micrometer tests showed not even .001" loss of crown. Chemically inert, the MICROROK roll is impervious to acid deterioration.

Based on this extraordinary record of performance, the plant superintendent estimates that the MICROROK roll should provide continuous maintenance-free service for 5 years.

Compared with conventional rolls normally requiring regrinding at least annually, this represents an important saving . . . both in maintenance costs and in the elimination of down time involved in the removal of hard-to-get-at bottom rolls.

Ask your Stowe-Woodward representative about MICROROK

*Name supplied on request

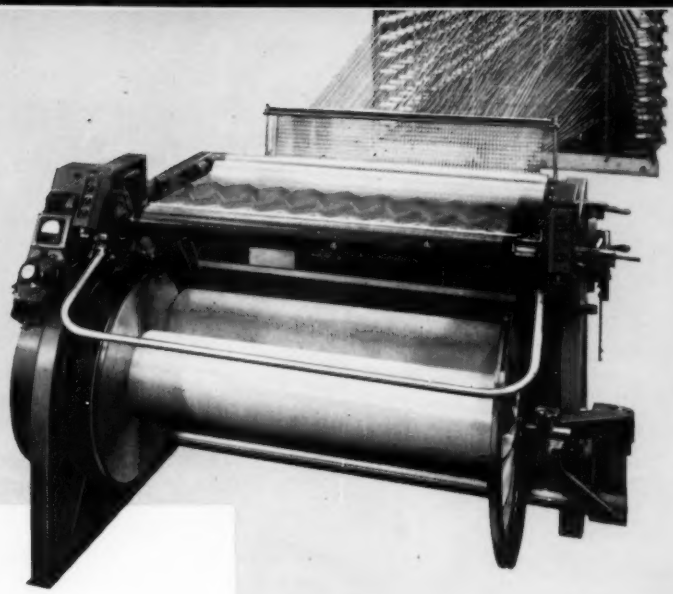
S-W INC.

STOWE-WOODWARD, Inc.

Craftsmen in rubber rolls

NEENAH, WISCONSIN • NEWTON 64, MASS. • GRIFFIN, GEORGIA

KIDDE recommends ALSIMAG® THREAD GUIDES for creeling and warping



AlSiMag No. GE-14507
Kidde C-13077 (193)
Kidde C-13099 (192)

AlSiMag No. GU-10748-A
Kidde C-13150 (193)
Kidde C-13070 (192)

These are the AlSiMag Guides used on the illustrated Kidde Creel and Warper.

AlSiMag No. GE-15585
Kidde C-13076 (193)

AlSiMag No. GE-18207
Kidde C-13139 (193)

In Eyeboard on Warper and Eyebars of Creel: Part GE-14507.

In Tension: Parts GU-10748-A, GE-15585 and GE-18207.

NOTE: AlSiMag 193 is a conductive material useful for dissipating static. AlSiMag 192 is a similar material, but non-conductive. These AlSiMag Guides are stocked by Kidde Manufacturing Co., Bloomfield, New Jersey, and may be ordered for immediate shipment—or may be ordered from American Lava Corporation. AlSiMag Guides for other Kidde/Sipp-Eastwood equipment are also stocked at Kidde.

Kidde TRADEMARK

Longer life at points of greatest wear is one of the reasons why so many leading textile machinery manufacturers standardize on AlSiMag Guides. They are ***hard*** and ***homogeneous . . . and have no point of sudden failure.*** AlSiMag Guides are ***uniform*** both physically and dimensionally . . . ***assist in better yarn control . . . cut time-consuming replacement of guides . . . speed operations . . . improve quality . . . eliminate costly yarn damages from undetected guide failure!***

This, in brief, is the story of AlSiMag Guides—which exhaustive tests over the years have proven ***cost less per pound of processed yarn!***

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News IN BRIEF

ISO Votes Yarn Standardization. Twenty nations, including the U.S.A., represented at the textile meetings of the International Organization for Standardization, meeting recently in England, voted approval of a universal system of yarn counts to replace the numerous systems now in use. The "Tex" system, which was selected, expresses the yarn weight in grams per thousand meters.

Textiles Wave Old Glory. Too many industries, including silk textiles, are wrapping themselves in the American flag, "trying to join more vital industries in this

drive for protection under the guise of national defense," said H. Struve Hensel, former Defense Department counsel, in recent testimony before a Congressional subcommittee.

AATCC Sponsors Fabric Course. A series of lectures on fabric construction is to be sponsored by the Educational Committee of the Philadelphia Section, American Association of Textile Chemists and Colorists, in cooperation with the Philadelphia Textile Institute. The course is planned to give basic information to dyers, and is slanted toward recognition of potential trouble or specific handling required in dyeing. Further information may be obtained from the Committee, at P. O. Box 5025, Philadelphia 11, Pa.

Japanese Design Center. Eight of Japan's textile associations have united to form the Japan Textile Color Design Center. Purpose of the Center is to act as a clearing house and registration office for textile designs, to remove the stigma which buyers in overseas countries have placed on Japanese textiles as copies of foreign ideas.

Fabrics Labeling. A fiber products labeling bill will probably be passed by Congress when differences between opposing factions are ironed out. The Smith Bill, sponsored by the National Cotton Council to publicize cotton content, is opposed by most garment manufacturers and by the National Retail Dry Goods Association. The Priest Bill, favored by the latter group, is an all-inclusive bill,

Tufted Suppliers, Improve Your Products—Barwick

"I am sure you are not unaware of the lag these last few years in research and development at the prime textile level supplying the tufted industry. Most of you [suppliers] have been riding the growth of the industry but have done comparatively little to improve your product.

"All suppliers do not fall in this category but too many do.

"Most of this blame I place on our own industry for being too easily satisfied and not analyzing thoroughly their own business operations and the needs for refinement in manufacturing.

"I wonder if the cotton duck suppliers know that from 27% to 33% of the seconds accounted for in small rug production—and all rugs using duck backing for that matter—are caused by mill seams.

"I wonder if you latex compounders know that from 22% to 26% of all scatter rug seconds are in some way caused by faulty latex either washing off, bleeding through, or unpredictable curing requirements.

"I am certain all of you spinners recognize the need for developing the proper spinning equipment for processing and spinning synthetic fibers. The need for our cut pile machines to pass

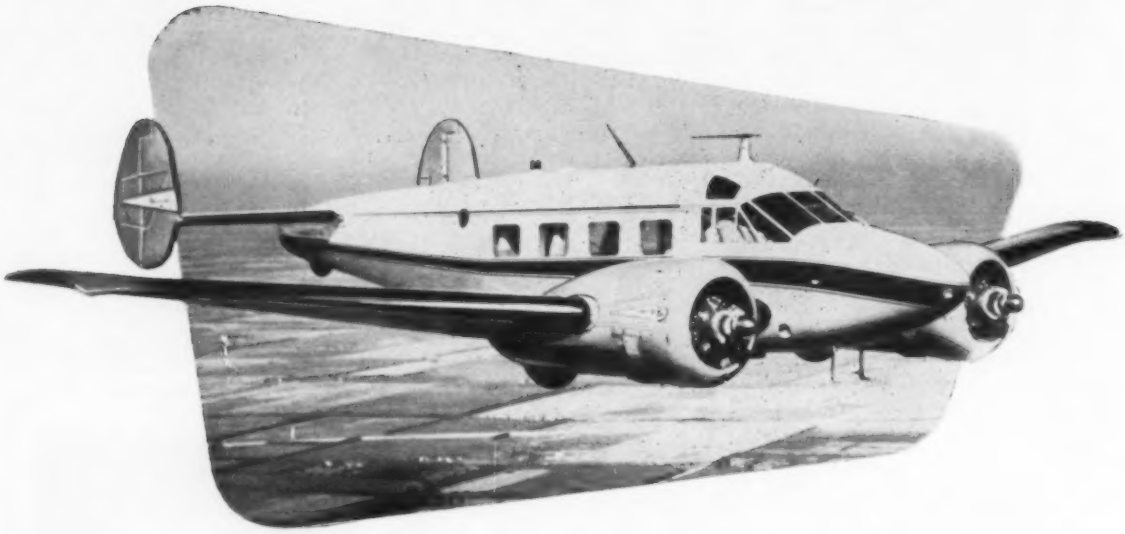
Mr. Barwick

the 50% efficiency barrier is great, yet the yarn is the deterrent at this point.

"The man-made fiber producers have in some instances made great strides but in my opinion the development has not kept pace with the need and demand for further improvement." — *Eugene T. Barwick, president, E. T. Barwick Mills, at the annual convention of the Tufted Textile Manufacturers Association.*

TRAVEL TIME IS

overhead time



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airfleet of the textile industry

A UNIQUE TIME-SAVING DEVICE is this miniature hand-loom in the New York offices of Mooresville Mills. Fabric samples that normally would require from four to six weeks to weave on production looms can be woven in one or two days on the tiny hand-looms. By providing samples in a few days' time, Mooresville enables customers to place their orders much closer to their season, giving them more timely styling.

which is also preferred by the National Association of Wool Manufacturers. Wool growers want to keep the present Wool Products Labeling Act, apart from any other bill that may be passed. As the *National Federation of Textiles Bulletin* phrases it, "The [wool growers are] still playing the same tune about the virtues of the virginity of wool from the sheep's back."

Close Mills for Week. Members of the South Carolina Textile Manufacturers Association should close their mills down completely for one week each year, in the interest

of better employee relations, said J. B. Harris of Greenwood (S. C.) Mills at the group's recent annual meeting. Mr. Harris emphasized that no coordinated curtailment of production was implied.

American Egyptian Standards Approved. Revisions in grade standards for American Egyptian cotton were unanimously approved at a meeting of producers, merchants, and spinners held recently in Washington. The new standards, which become effective August 1, 1957, are based on a study of the 1955-56 crop, principally Pima S-1.

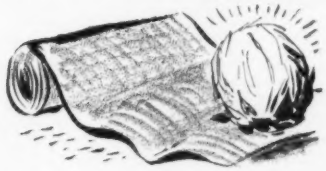
TRI Cotton Research Report. Findings of the Cotton Research Project at Textile Research Institute show that no fundamental differences exist in the processability of rain-grown vs irrigated cottons that can not be explained by crimp and surface characteristics. Number-length distribution methods of measuring fiber fineness have been found to reveal the presence of undesirable short fibers more effectively than do weight-length methods.

Rayon Shipments Up and Down. U. S. producers of rayon and

News in Brief

acetate shipped 87.6 million pounds of staple and filament in May, an increase of 2% over April, but 14% below the amount shipped in May, 1955, according to *Textile Organon.*

Rugs Have Big Potential for Cotton. The soft floor covering market, particularly in tufteds, represents the largest outlet for textile fibers in the field of household products, and so offers excellent opportunities for expanding the use of cot-



ton, says the National Cotton Council. The Council's report, "Market Potential for Carpets and Rugs," finds that the competitive position of cotton can be strengthened by increasing profit incentives for producing and distributing cotton rugs and by improving their quality.

French Produce Polyester Fiber. Societe Rhodiaceta, French producer of synthetic fibers, has begun commercial production of Tergal polyester staple and filament, under license from Imperial Chemical Industries, Ltd., of England. Current production is said to be five million pounds annually.

Engineer Merry-Go-Round. Engineer turnover in many industries has shown a steady uptrend since 1953, reports *Industrial Relations News.* The reasons: usually not

salary, as might be supposed. Dissatisfaction with company policies and practices toward engineers is most often the compelling reason. The cost: Recruiting, training, and

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Problems like these are becoming more frequent. And they rob you of precious time you could be spending on the profit-building aspects of production and sales. There's one way you can free yourself forever from these troublesome nonproductive problems, at no extra cost or risk. It's through Commercial Factors' "Protected Profit Program."

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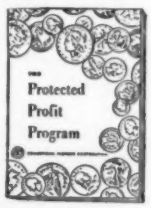

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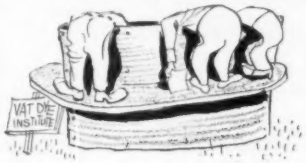
then losing an engineer amounts to between $5,000 and $20,000, apart from loss of the engineer's creative potential. The solution: Management should give engineers the same attention it gives its better-organized production workers.

Vat Dye Institute Formed. A group of dyestuff manufacturers have joined to form the Vat Dye Institute, with the avowed purpose of increasing and expanding the consumption of vat dyes. Charter



members are American Aniline Products, American Cyanamid, Arnold Hoffman, Dow Chemical, Du Pont, General Aniline, Metro, National Aniline, Allied Chemical and Dye, Nyanza, Otto B. May, Peerless Color, Pharma Chemical, and Toms River-Cincinnati.

Fiber Producers Sponsor Seminar. Four major producers of man-made fibers last month sponsored a cooperative seminar for fifty home economists from colleges and universities in thirty states and the District of Columbia. The group spent a day in turn at the headquarters of each of the four companies.

Right in Your Own Back Yard. Most companies have the potential answer to the shortage of skilled labor within their own work force, says Eugene Benge, of Benge As-

sociates, management engineers. Based on his own experience, Mr. Benge says that the average work force has about 6% promotable employees. These diamonds in the rough should be sought out and given training for supervisory jobs, or should be trained as skilled technicians.

Pile Fabrics for Insulation. Experimentally developed pile fabrics for insulating flight garments and cold weather gear are evaluated in a recent Air Force report. Fabrics of various fibers—natural, synthetic, and blends—were compared. Researchers found that fiber type has little effect on the warmth of a pile fabric, although certain synthetic constructions consistently appeared slightly better. Copies of the 47-page report, "Pile Fabrics for Insulation," PB 111985, may be obtained from the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. Price: $1.25.

TRI to Study Crimp in Synthetics. Textile Research Institute has announced an industry-sponsored project to study the effects of fiber crimp on the properties and processing performance of the various man-made fibers.

News in Brief

Japanese Sweaters "Ominous Problem." Imports of Japanese sweaters, which increased 450 per cent in 1955 compared to 1954, are the "most ominous problem" facing the American knitted outerwear industry, said Sidney Kor-

zenik, executive director of the National Knitted Outerwear Association recently. Mr. Korzenik cited the fact that British sweaters, which sell for less than comparable

A Report on L-22 Finishing of Rayons After 9 Months of Operation

"In all the processing we have done under American Standard L-22, since our announcement last September, we have not received a single complaint, a single claim or a return of any nature.

"A fair portion of these goods will be in garments carrying a Reeves L-22 hangtag for sale this fall. These tags have been restricted to manufacturers with a reputation for acceptable quality of cut, make and trim.

"We are confident these garments will give the wear expected for the price they cost—certainly far better wear than slightly cheaper garments made of fabrics finished under no identified standard.

"Although their total is small in relation to the whole industry, at least a start has been made. These garments are principally men's and boys' trousers, the type of clothing that shows wear more quickly perhaps, than any other. . .

"We are spending every effort to convince top level management in the large retail firms that they instruct their buyers to buy *only* these garments, when made of rayon fabrics, finished according to L-22. We are confident that in the very near future such action will be taken. Furthermore, we are endeavoring to convince them that

Mr. Reeves

they should advertise this quality, promote it, and really get behind it and sell it.

"I believe they will be astonished with the public's reaction. People today are value conscious. They *will* buy if they are convinced. We're trying to do the manufacturing job. We hope stores will do the merchandising job. . ."
—John E. Reeves, president of Reeves Brothers, Inc., during the 47th annual meeting of the American Home Economics Association, Washington, D. C., June 28, 1956.

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domestic grades, are being undercut and squeezed out of the American market by Japanese competition.

World's Fair of Fashion. The Fashion-O-Rama, to be held in the New York Coliseum Oct. 27-Nov. 4, will be devoted exclusively to

the women's, men's, and children's fashion industries. Exhibits will be presented by textile mills, garment manufacturers, designers, retailers, trade associations, and labor unions.

Fieldcrest Measures Blanket Shedding. The Shedometer, an instrument developed by Ivar Moberg of Fieldcrest Mills, measures the shedding characteristics of the nap of a blanket. A strip from the center of the blanket is brushed 50 times on each side with a 3½-lb nylon brush, with a 12-inch stroke. Fibers are collected from the brush by vacuum cleaner and are weighed. From customer complaints it was determined that 1.5 grams is the maximum that can be removed from the area tested without an indication of excessive shedding.

Tufted Potential Great. "At the 1955 level of production of 76.5 million square yards of tufted rugs and carpeting it would take the tufted textile industry over *36 years* to supply a 9′ x 12′ rug or its equivalent for each of the rooms that now exist in our present occupied dwellings."—*Arno H. Johnson, vice-president and director of research, J. Walter Thompson Co.*

Cuba to Produce Acetate. Cuba will obtain its first acetate plant through a contract just signed between Industrial Plants Corp., of Zurich, Switzerland, and Acetafil S.A., of Havana. Initial production, to begin in late 1957, will be six million pounds of yarn and staple annually. Raw materials will be supplied by Eastman Chemical Products, Inc.

Cotton Farmers Should Finance Research. If cotton is to insure its long-range future, cotton farmers should begin thinking about paying from $1 to $1.50 per bale into an industry fund for research and promotion, according to W. T. Wynn, board chairman of the National Cotton Council.

Fading Tests May Be Misleading. The use by the industry of hours, sun hours, or ultraviolet hours as yardsticks for testing sunlight fading are "a snare and a delusion," AATCC's Executive Committee on Research heard recently. These units vary widely, but the problem can be solved by using the Langley heat energy unit in conjunction with AATCC Blue Standards, the Committee was told.

Narrow Fabrics Weavers Organize. The Narrow Fabrics Institute, Inc., has been formed by a group of manufacturers in that field, to deal with common industry problems. First president of the organization

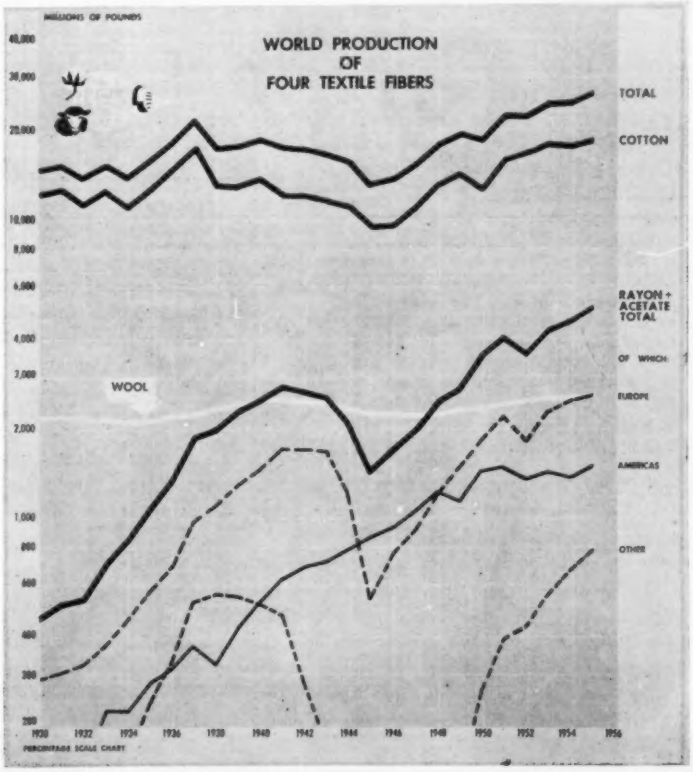
News in Brief

is Russell J. Neff of Phoenix Trimming Co., Chicago. Headquarters for the Institute have been located at 11 West 42nd St., New York City.

Where Have We Heard That Before? In 1951, tufted rugs and carpets made up only about 9% of total tufted plus woven production in the U.S.A.; in 1955 tufteds made up 43½% of production, or 56% if scatter rugs and other

small tufted floor coverings are included. Now, the Federation of British Carpet Manufacturers in its

WORLD PRODUCTION of four major textile fibers is shown in this chart, reproduced from *Textile Organon.*



Using Salt Efficiently

by **INTERNATIONAL SALT COMPANY, INC.**—America's largest producer of salt

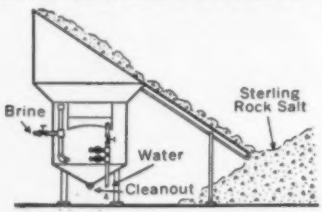
Combining Storage and Feeding Makes Salt Handling Easier

To save both time and manpower in salt handling—many plants have installed salt-storage units which feed directly into a salt dissolver. These units are particularly useful in plants where large tonnages of salt are consumed every day. But even in smaller plants, combination storage and feeding units are proving valuable. This is because they cut down on the amount of floor space needed to store salt.

In plants where floor space is at a premium, salt is often purchased in bags to permit high stacking. Here, too, combination storage and feeding units can produce substantial savings. They permit the purchase of economical bulk rock salt—and reduce salt-handling costs to a minimum.

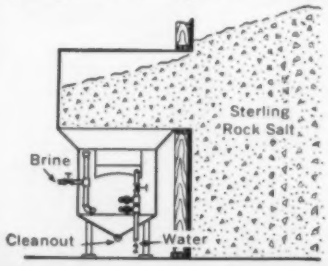
What about one of these units for your plant? Here are six of the most practical designs for combining salt storage and feeding. One of them—or an adaptation of the basic design—may be effective in saving floor space and lowering salt-handling costs for you.

1. Filling dissolver from floor pile. If salt must be stored in bulk on the same floor



as the dissolver (all dissolvers shown here are International's famous Sterling Model Lixator), an excellent feeding device is a portable belt conveyor. The best type for moving salt is made of aluminum with a rubber belt, and is between 16′ and 20′ long. The same conveyor moves salt not only from a floor pile into the Lixator, but also from a car or truck into the plant.

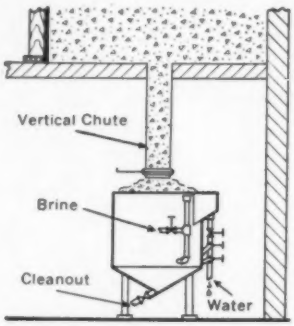
2. Wall-type hopper, bolted directly to an opening in a salt-storage bin. As long as



the salt supply in the bin is sufficiently high to permit gravity flow into the Lixator hopper, feeding will be automatic. When salt supply is no longer self-feeding, the operator stands on the salt in the bin and shovels directly into the hopper.

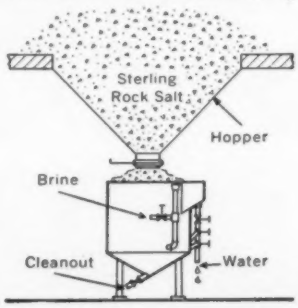
3. Overhead storage with gravity feed into hopper. This design is often used when uninterrupted salt feed is needed, but the storage floor has relatively little salt capacity. A cylindrical-type hopper directly under the hatch holds a large amount of salt for feeding the Lixator—and acts as a substantial secondary storage unit. Ordinarily, though, if salt can be stored above the Lixator, the next design is preferable.

4. Overhead storage with vertical chute. This direct-feed unit is a practical, econom-



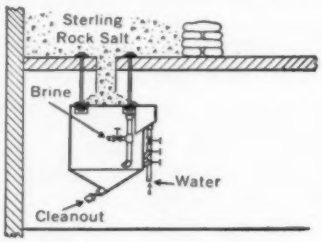
ical way of operating the Lixator. If storage capacity on floor above is large enough, no hopper is needed, which means a considerable saving. Feed is automatic because of angle of repose for salt.

5. Pyramid-type hopper design. This is another variation of overhead feed, coupled



with large storage capacity. But if storage space on floor above is limited, this design is also practical. Salt can simply be dropped into the hopper through a large hatch with a removable cover.

6. Lixator hung above floor, to save floor space. A very desirable design when



floor space is at a premium. Design here also shows use of a few salt bags to act as a storage-bin wall—in lieu of a permanent bin structure.

One final note about the equipment shown here. All Lixators operate on exactly the same principle. They vary only in size and capacity, and in methods of delivering salt to the dissolver unit. All Lixator designs are exclusive International Salt Co. developments, properly protected by patents and patents pending.

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If you'd like the assistance of an International "Salt Specialist" on any problem concerning salt or brine—or further information on salt storage and methods of feeding salt—just contact your nearest International sales office.

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Sales Offices: Atlanta, Ga.; Chicago, Ill.; New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Cleveland, O.; Philadelphia, Pa.; Pittsburgh, Pa.; and Richmond, Va.

FOR INDUSTRY, FARM, AND THE HOME—
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annual report for last year says, " . . . it is very doubtful whether the same course of events could or would happen in the United Kingdom." The Federation bases this prediction on the fact that raw materials make up a high percentage of carpet costs, wool can not be used as pile yarn in tufted carpets, and pattern effects in tufteds are limited. The same facts were used in this country five years ago to prove that tufteds would never amount to much in the American carpet picture.

Texas Cotton Report Available. "Summary Crop Report of the Texas Cotton Crop for the Year of 1955-56," a 27-page pamphlet giv-

ing area-by-area reports on the fiber and spinning properties of Texas cotton, is available from Cotton Economics Research, The University of Texas, Austin.

Textile Standards to Be Revised and Merged. Rayon and acetate standards L22 will be revised in the light of "advances in technology and experience of the industry," says the American Standards Association. The L25 project on "all textiles" will be merged with the L22 standards. These ASA standards are sponsored by the National Retail Dry Goods Association, and are viewed with a jaundiced eye by many mills.

Cotton Mechanization Conference. Because the tenth annual Beltwide Cotton Mechanization Conference will pinpoint the major problems facing the cotton industry, it should be of interest to many in the textile manufacturing industry, according to an announcement from the National Cotton Council of America. The meeting is scheduled to be held at the Biltmore Hotel in Atlanta, Ga., on August 22-24, 1956.

Wool Rags Lead Exports to Reds. Major export item from the U.S.A. to the Soviet bloc of countries in 1955 was wool rags, which accounted for 58 per cent of the $1,151,000 in total exports to the area for the fourth quarter of last year, according to a report by Secretary of Commerce Weeks. Among items licensed for the first quarter of 1956 was $171,940 worth of equipment for a rayon plant in Poland. Included in approved licenses for transmission of technical data to Iron Curtain countries were design and construction details for the Polish rayon plant, and data relating to hosiery dyeing machinery.

Cotton "Parliament" Hits at U.S. Cotton Bale. American cotton still arrives at foreign mills in the most dilapidated condition of any article of world commerce, complained a committee of the International Federation of Cotton and Allied Textile Industries at a recent meeting in Munich, Germany. Efforts by American groups to improve the situation were noted by a cotton merchants' committee, which suggested that cotton offered the best prospects for a suit-

News in Brief

able covering. At the meeting, the National Cotton Council of America was elected an associate member of the Federation.

Recent Labor Decisions. An employee's membership in the Communist Party is just cause for his discharge under a union contract, the Supreme Court has ruled in upholding a California court. * * * An employer's right of free speech and his right to hire and discharge

employees for any reasons other than to discriminate against unionism have been strongly reaffirmed by the Court of Appeals for the Fifth Circuit. The court found, however, that a threat to shut

MERCHANDISING NOTES

American Viscose Corp. has accepted American Standard L22 as the minimum quality requirements for all merchandise displaying the Avisco Integrity Tag.

Commercial Factors Corp. vice-president, Reinald R. Kaufmann, says that department stores generally must share the blame for the slow-down in ladies' apparel sales. Reluctance to stock inventory in depth showed a lack of creative merchandising which has, in turn, slowed down sales.

Goodyear Tire & Rubber Co. has introduced a new dual-compartment safety tire, which enables a motorist to ride at legal speeds for 100 miles or more after a blowout. The new tire was made possible by development of the 3-T triple-tempering process for nylon tire cord.

Industrial Textile Mills are marketing acid-resistant fender covers made of Dynel, for use in auto repair shops and service stations.

Textured Yarn Co. is running an intensive advertising campaign on behalf of its Tycora yarn—46 pages of advertising will appear in consumer magazines during the fall and winter.

Tootal Broadhurst Lee Co. Ltd. has developed a new crease-resistant treatment for linen. Fabrics treated by the process will be on sale in American stores this fall.

USF-Aspinook-Arnold has prepared a comprehensive "Vat Color Sales Training Course in Decorative Fabrics" for retail store personnel.

Waverly Fabrics and *Seventeen* have designed and produced a coordinated fabric and wallpaper pattern with a teen-age motif, titled "Seventeen."

This Cocker All Purpose Slasher has . . . High Speeds Accurate Controls Ease of Operation

. . . for all yarns

HIGH SPEEDS Sustained speeds of 125 yards a minute — without noticeable vibration — are made possible by extra heavy construction and by Cocker's patented Friction which will not run hot regardless of speed or load.

ACCURATE CONTROLS All operations are under automatic or push button control at all times. Speed is rheostat controlled with stopping, starting, and intermediate push button control. Variable speed DC drive maintains even tension at all times. Tachometers, output and stretch indicators, etc. have long been standard equipment on all Cocker Slashers.

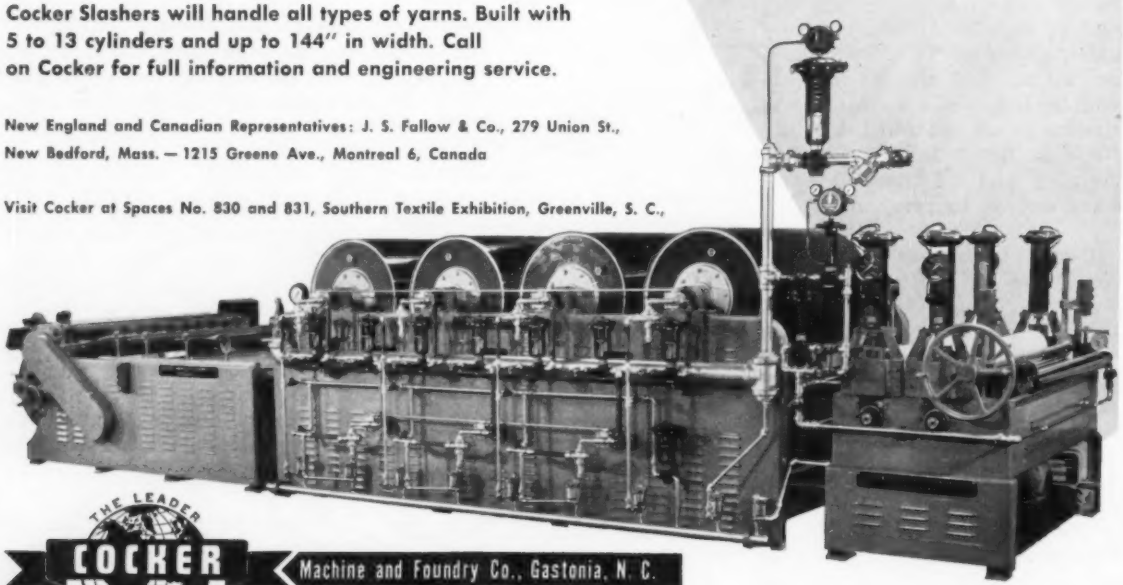
EASE OF OPERATION Special Cocker features improve operating efficiency. Among these are • air operated carrier and delivery rolls • fast and simple latch release for beam doffing • air operated ironing compressor roll with finger tip variable pressure control.

SMOOTH, HARD BEAMS The new Cocker Differential Compensating Friction Control with DC Drive produces smooth, hard, even beams and gives 20% to 25% more yarn per loom beam. Also available with multi-motor drive.

Cocker Slashers will handle all types of yarns. Built with 5 to 13 cylinders and up to 144" in width. Call on Cocker for full information and engineering service.

New England and Canadian Representatives: J. S. Fallow & Co., 279 Union St., New Bedford, Mass. — 1215 Greene Ave., Montreal 6, Canada

Visit Cocker at Spaces No. 830 and 831, Southern Textile Exhibition, Greenville, S. C.,



THE LEADER COCKER AROUND THE WORLD

Machine and Foundry Co., Gastonia, N. C.

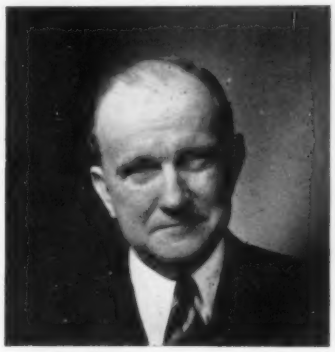
WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

Tufteds to Feel Foreign Competition

"I would like to address a few words to [the] subject [of import competition]. We made inquiry as to what the import threat may be to tufted carpeting. To date imports from abroad are negligible but inasmuch as you have established a profitable industry here, you can fully expect that foreign producers will essay to cut themselves a share of it. Production abroad is only now beginning, but it is certain to expand as the advantages of tufted carpeting become better known.

"The experience of the woven carpet industry with import competition is worth noting. Imports of machine-made woven carpeting have increased in ratio from 1½% of domestic production in 1949 to 7% in 1955. Eighty-three per cent of our imports are from Belgium, where they are produced at an average hourly wage of about 48 cents, compared with $1.77 paid for corresponding work in the United States. Over 4 million square yards of machine-made woven carpeting were brought in last year at an average invoice value of around $3.60 a square yard.

"The duty on woven wool carpeting is presently 25% ad valorem, which would bring the average value plus duty to $4.50 a square yard. Imported carpeting is being retailed at approximately



Mr. Dalton

$2.00 a yard less than the comparable domestic product. While the current 25% duty is obviously no bar to imports, it is being negotiated at Geneva and may be cut to 21% in three years.

"The threat from import competition may be even more critical for tufted carpeting. Production of tufted carpeting requires less capital investment for machinery and may mean that a larger share of manufacturing cost would be labor in which foreign manufacturers have so distinct an advantage. It may be timely to begin thinking of import competition." — *Harry L. Dalton, vice-chairman of the board, American Viscose Corp., at the annual convention of the Tufted Textile Manufacturers Association.*

down the plant if the employees joined the union exceeded the bounds of protected free speech. Said the court, "Management can discharge for good cause, or bad cause, or no cause at all," except for union activity.—*NAM Law Department.*

Cyanamid to Produce Acrylic. American Cyanamid Co. has definitely committed itself to the synthetic fibers field with the announcement that construction will begin next December on a plant for the commercial production of Creslan acrylic fiber. Site of the plant will probably be northern Florida, with the basic acrylonitrile coming from the company's plant near New Orleans, La. Full scale marketing of Creslan will begin in mid-1958, with pilot plant quantities available in the meantime.

Sweater Week. The eleventh annual "Sweater Week" will be celebrated this year from September 17-23, the Knitted Outerwear Foundation, promotional affiliate of the National Knitted Outerwear Association, announced. Last year 20,000 retailers tied in with the event, and it is expected that this year an equal number will take part.

Tufteds Must Improve Employee Relations. Tufted manufacturers still have a long way to go in employee relations, said Frank Constangy, Atlanta attorney, at the recent Tufted Textile Manufacturers Association annual meeting. Citing the strikes, violence, charges, and counter-charges during last year's union drive in Dalton, Ga., he warned that if management did not get its house in order, operatives would have no choice but capitulation to union control.

News in Brief

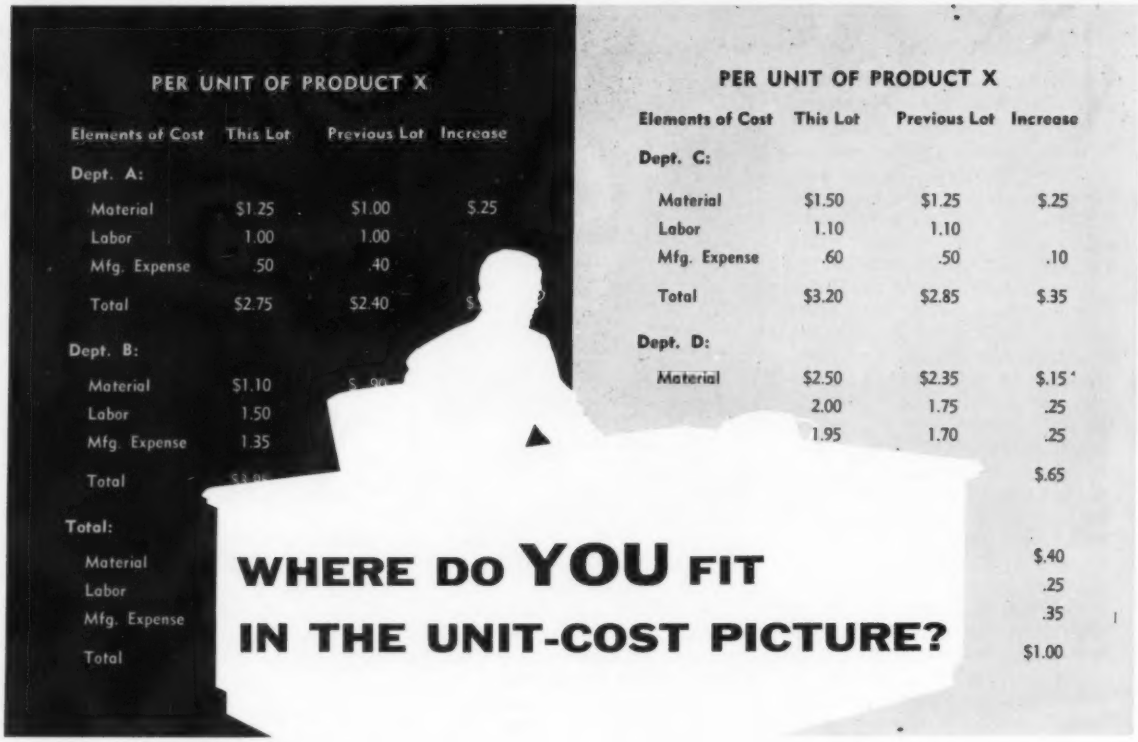
Needle Trades Show for NYC. Arthur Tarshis Associates will present an all-inclusive needle trades equipment exposition at the New

York Trade Show Building, October 14-18. Equipment will be displayed for the apparel, domestics, home furnishings, automobile upholstery, and other needle trades industries.

USAF Evaluates Toxicity of Mildew-Proofing Agents. The toxicity to the skin of several agents which could be used to mildew-proof clothing is evaluated in a research report just released by the U. S Air Force. Several halogen-substituted dinitrobenzenes were found to produce strong irritation, and are therefore not recommended for use on material which will touch human skin. Copies of the 22-page report, "Cutaneous Toxicity Evaluation of Fabrics Impregnated With Anti-Mildew Agents," PB 111800, are available from the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. Price: 75 cents.

Du Pont Folks Are Well Educated. One of every seven Du Pont employees is now a college graduate, compared with one in ten in

1947. Since that year, the number of employees has risen 15%, to about 100,000, while the number of college graduates has doubled, to 14,000.



You know production cost has no closed option on market price.

You know acquisition, overhead, shipping, depreciation, replacement and sales have a finger in the till between raw material and the final sales price.

You know the only direct control you have over your competitors is to *compete* . . . in quality, in delivery and in price.

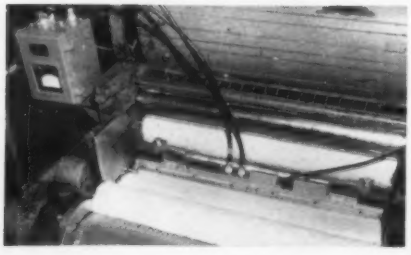
But, *DO YOU KNOW* significant advances in unit-cost control are virtually monopolized by a few firms? That these firms recognize final sales price and profit spread begin in continuous control of short and long term variations in the picker lap? That early process control is a necessity with fewer doublings for highest production?

C.Q.C. USTER

SALES OFFICES: Needham Heights, Mass., Allentown, Pa., Greenville, S. C.
CANADIAN SALES OFFICE: Hugh Williams & Co., 27 Wellington St., E., Toronto 1, Ontario.

USTER CORPORATION
CHARLOTTE 8, N. C.

CONTINUOUS QUALITY CONTROL IN MANUFACTURING



CHECK THESE PRODUCTION FACTS

continuous lap control ✶ reduces neps ✶ pin-points mechanical faults even lap means fewer doublings ✶ minimum gear changes in processing maximum efficiency of all mill machinery.

AN EXECUTIVE Views

THE NEWS IN TEXTILES

Prepared by a man who is closely identified with the textile industry.

Tar Spots — The Fleas on the Dog?

IN THE JUNE issue this column reminded each and every one that tar spots had again reared their ugly heads. Not that mills which process cotton needed any particular reminding, but your correspondent thought it prudent and timely to keep the subject before the industry, so that when the opportunity arises you might contribute your share toward reducing tar spots.

So much has appeared in this magazine on tar spots—where they come from, how they get there, and how to remove them—that a full dissertation on the subject is not needed at this time. But it is interesting to note that some groups in the textile industry and allied fields have reached the point of no return on tar spots, and they have decided to take the bull by the horns and get rid of the pesky things once and for all.

Mill men in the State of Alabama, in cooperation with some other groups, are determined to make Alabama cotton free of tar spots. That's a big order, but they have had big orders before—and filled them.

The general plan, and it is already under way, is to work with the cotton producers, cotton shippers, the state extension service, ginners, warehousemen, national associations for every segment that is interested in cotton, the government agencies, and anyone else who can affect the presence of a tar spot in cotton or the absence of the tar spot—to educate from the soil up to the mill those folks who can correct the situation and—

—make Alabama cotton free of tar spots! !

That is the general plan. But this time getting rid of tar spots will not end with a discussion of the subject, the appointment of a committee, and a report based on what is already known. The mill men in Alabama will do a bit of overtime work in each of their districts and contact the farmer and the ginner in person to explain to them just what tar spots cost the mill and how this cost eventually will come back on the farmer and the ginner.

When a mill official or the superintendent completes his daily chores and signs his mail, he gets in his car and starts his second shift by visiting the local farmers and ginners. He takes a sample of cotton goods that has tar spots and shows it to his neighboring cotton farmer and ginner. If the cotton farmer is in a district where there is no textile plant, the message is still brought to him.

This personal contact is a lengthy process and an extra-curricular activity for the mill men, but it should pay off.

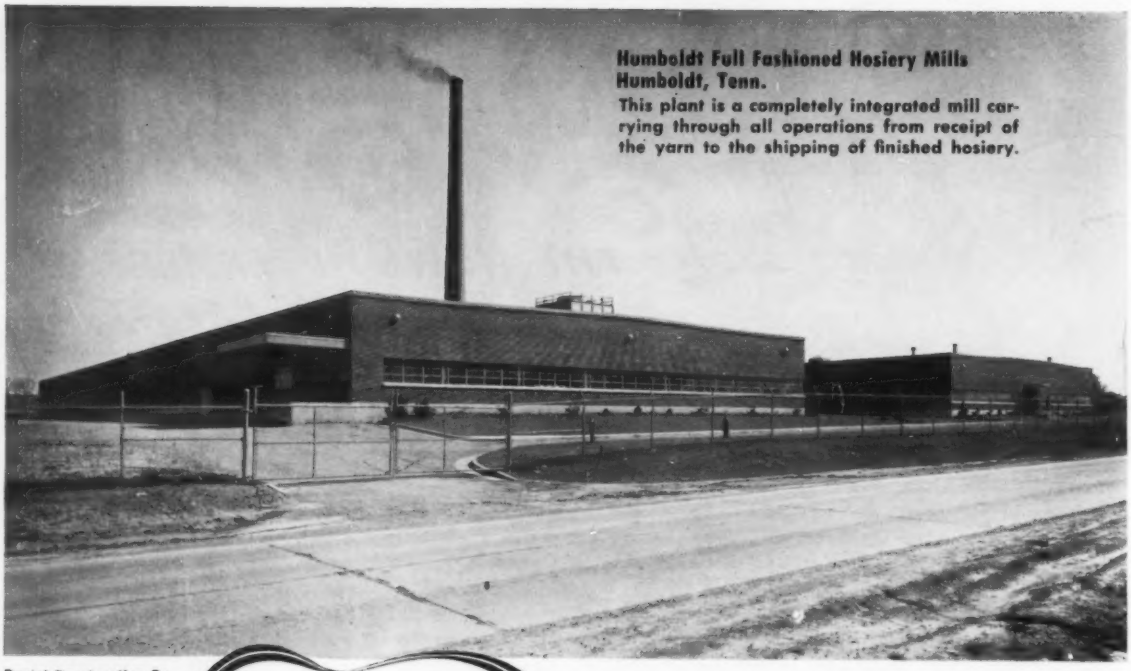
A number of years ago, when Alabama cotton was called "dog-tail" by members of the trade, the textile mill people of Alabama started on a program of cotton improvement to encourage the farmer to produce better cotton. Other groups were interested, but the textile mill men were interested enough to dig down into their pockets and come up with an interest that could be seen, felt, and spent by the farmer. The idea was to have a cotton improvement contest in the several districts of the state, and whoever won the contest got a sizable check—in addition to

Whose Shoes Will You Be In?

Don't be like this unhappy exec,
(Nervous exhaustion; a mental wreck!)
Now in the throes of cruel desperation . . .
Waited too long to make HIS reservation!

He's calm and unruffled as you can see,
(As befitting one of his position)
HIS reservation was mailed in early
To the Southern Textile Exposition!
. . . . is *yours?*

Plan NOW to go to the Greenville Show!
October 1-5, 1956



Humboldt Full Fashioned Hosiery Mills
Humboldt, Tenn.
This plant is a completely integrated mill carrying through all operations from receipt of the yarn to the shipping of finished hosiery.

Daniel Construction Co., Builders

LOCKWOOD GREENE
Projects
in
KNIT GOODS

Lockwood Greene has completed over 300 engagements in the Knit Goods field and has had over 4,000 engagements in the entire textile field.

Over A Century of Industrial Plant Experience
Continuous Management Services From Site Selection to Plant Completion

LOCKWOOD GREENE
ARCHITECTS-ENGINEERS

BOSTON 16, MASS. 316 Stuart Street
NEW YORK 17, N. Y. 41 East 42nd Street
SPARTANBURG, S. C. Montgomery Building

Brochure Available on Request

Union Underwear Co. (Taylor Mfg. Co.), Campbellsville, Ky.
This new plant is the last word in production efficiency from receipt of yarn at rear end of lower floor thru knitting and bleaching to upper floor for cutting, sewing, pressing, boxing and shipping at upper floor platform shown.

a better price for his cotton.

The mill men know that the cotton farmer is one of their best friends, and because they have worked with their friends and encouraged cotton improvement, cotton in Alabama has made tremendous strides. The textile men are proud of Alabama cotton, they are proud of their farmer friends, and they are proud to have had a hand in the improvement of Alabama cotton.

But they don't want any backsliding in Alabama cotton because of tar spots. They feel that since so much progress has been made with cotton improvement in Alabama, any criticism because of tar contamination will be a step in the opposite direction. And they have made too much progress to stop now.

The mill men are genuinely interested in the cotton farmer. So much so that when the time comes to make the award in a district to the winner of the cotton improvement contest, who makes the award? Nope, not the local mayor or justice of the peace. It is a mill man.

To get back to the tar spot educational program by the mill men, and their conversations with the farmer and the ginner, it should be pointed out that when the mill men have completed their personal visits, they will know which areas of Alabama cotton will be contaminated through use of tar coated pick sacks, tarred storage areas, tarred shipping facilities, etc.

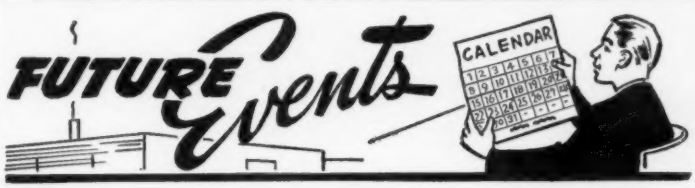
If the ginner or the farmer cannot be educated on keeping the cotton from getting contaminated. or if either shows a complete disregard for contamination, the facts will be known by all of the mills in Alabama. The mills can then buy their cotton from areas where the cotton is not tar contaminated.

Some day in the not too distant future, Alabama cotton will be free of tar spots.

And that's not all—some other mill men have lived with tar spots so long that they may have decided that tar spots in cotton goods will continue to be there forever, just as dogs and fleas go together. They haven't said so in so many words, but they may figure that when a fellow buys a dog, he also buys the fleas. So they have the idea that someone other than the mill should be responsible or jointly responsible for the appearance of tar spots in the cloth.

These mill men feel that if tar spots are in the cotton, and they didn't put them there, and the mill has no control over tar spots, it should be definitely defined as to

(Continued on page 217)



Date		Event	Location
Aug.	22-24	Cotton Mechanization Conference	Biltmore Hotel Atlanta, Ga.
Sept.	6-7	The Fiber Society, Inc.	The Warwick Hotel New York City
	10-15	Perkin Centennial	Waldorf-Astoria New York City
	13-15	American Association of Textile Chemists and Colorists annual convention	Waldorf-Astoria New York City
	22	Southeastern Section AATCC	Hotel Ralston Columbus, Ga.
	27-28	Combed Yarn Spinners Association convention	Cavalier Hotel Virginia Beach, Va.
	27-28	Northern Textile Association and National Association of Cotton Manufacturers annual meeting	Wentworth By-The-Sea Portsmouth, N. H.
	28	Northern New England Section AATCC annual outing	Waschusett Country Club West Boylston, Mass.
	28	Philadelphia Section AATCC	Abraham Lincoln Hotel Reading, Pa.
Oct.	1-5	Southern Textile Exposition	Textile Hall Greenville, S. C.
	3-4	Chemical Finishing Conference	Hotel Statler Washington, D. C.
	6	Piedmont Section AATCC	Hotel Charlotte Charlotte, N. C.
	10-12	North Carolina Textile Manufacturers Association annual meeting	The Carolina Pinehurst, N. C.
	13	Georgia Slashing, Weaving, and Maintenance Discussion (TOE)	Georgia Tech Atlanta, Ga.
	15	Western New England Section AATCC	Hartford, Conn.
	16-19	ASTM Committee D-13 on Textiles	The Warwick Hotel New York City
	17-27	International Knitting Machinery & Accessories Exhibition	Granby Halls Leicester, England
	18	Rhode Island Section AATCC	Johnson's Hummocks Grille Providence, R. I.
	18-19	Southern Textile Methods and Standards Association	Clemson House Clemson, S. C.
	22-26	44th National Safety Congress and Exposition	Conrad Hilton Chicago, Ill.
	27	Alabama Textile Operating Executives fall meeting	Thach Auditorium Auburn, Ala.
Nov.	27-30	National Chemical Exposition	Public Auditorium Cleveland, Ohio
Dec.	1	South Central Section AATCC	Hotel Patten Chattanooga, Tenn.
1957			
Jan.	28-29	National Cotton Council annual meeting	St. Louis, Mo.
Feb.	27-28	Cotton Research Clinic, sponsored by National Cotton Council	Gen. Oglethorpe Savannah, Ga.
Apr.	4-6	American Cotton Manufacturers Institute annual meeting	Biltmore Hotel Palm Beach, Fla.
	23-24	National Knitted Outerwear Association annual meeting	Waldorf-Astoria New York City
	29-May 3	Knitting Arts Exhibition	Auditorium Atlantic City, N. J.
May	1-2	Fiber Society spring meeting	Clemson House Clemson, S. C.

PERFORMANCE VERIFIED / by acid test

Even before a Powell Corrosion Resistant Valve is made, it must pass the acid test. For quality control begins with the very materials which go into Powell Valves.

Constant laboratory control is one of the many ways we make certain that Powell Corrosion Resistant Valves will give dependable flow control. Another is the final step of manufacture: *every Powell Valve is subjected to an actual line test.*

To keep pace with the rapidly expanding chemical and process industries, Powell has designed many new types of Corrosion Resistant Valves. The variety of pure metals and special alloys in which they are available has grown to such an extent that today there is a Powell Corrosion Resistant Valve to control the flow of almost every known, corrosive fluid.

Consult your Powell Valve distributor. If none is near you, we'll be pleased to tell you about our COMPLETE *quality line* which has PERFORMANCE VERIFIED.

The Wm. Powell Company, Cincinnati 22, Ohio . . . 110th YEAR

PERFORMANCE PV VERIFIED

FIG. 1503 SS (Sectional)—150-Pound Alloy Steel Gate Valve.

FIG. 3065 SS (Sectional)—300-Pound Bolted Cap Alloy Steel Horizontal Lift Check Valve.

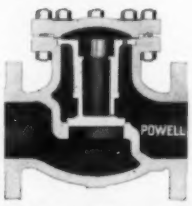
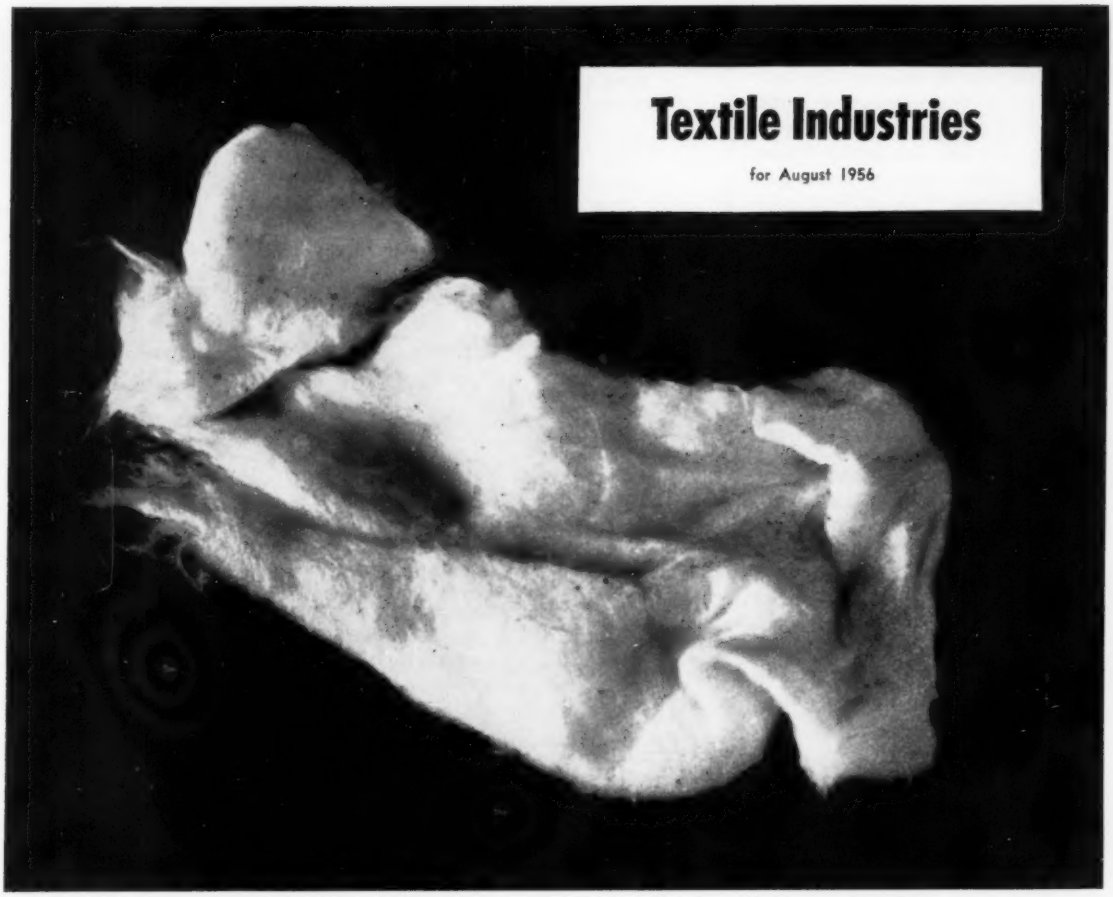


FIG. 1333 A (Sectional)—Integral Bonnet Angle Valve For Pressures of 1500 and 2500 W.S.P.

POWELL VALVES

BRONZE, IRON, STEEL AND CORROSION RESISTANT VALVES.



WASTE from the vacuum scavenger system on a spinning frame making 36s. The test described in this article showed that 85% of this waste, as illustrated, was due to fly; 15% was due to ends down. Note that this was a controlled test, and these figures do not indicate a greater proportion of waste from fly than from ends down in regular production of yarn at this mill.

An Analysis of Vacuum Scavenger System Waste from Spinning Frames

BY F. G. ERNEST
EXCLUSIVE

WHAT proportion of waste from vacuum scavenger systems is derived from sources other than ends down? This question is important to mill men who are concerned with waste control.

It is a generally accepted fact that the vacuum scavenger waste collection system produces more reworkable lint waste than can be accounted for by the number of ends down at the spinning frame. This is due to the fact that the suction of the scavenger system picks up a certain amount of fly from the surrounding air. Also, a certain number of short fibers are pulled loose from ends which are properly running and which have not come down.

Many estimates and studies have been made as to the amount of these types of pick up. The resulting answers range from .10% to 2.00% of the total spinning production.

What We Set Out to Learn. In order to determine the amount and types of waste chargeable to our vacuum scavenger system, we conducted a series of tests. Our objective was to find the answers to the following questions:

1. How much of this waste is produced?
2. Do any of the following characteristics have any effect on the amount of this waste?
   (a) Yarn Count
   (b) Twist
   (c) Length of Draft
   (d) Type of Stock
3. What are the appearance and characteristics of this waste?
4. If this waste is isolated, is it still suitable for reworking.

The purpose of finding the an-

swer to the last question was to determine the effect on the quality of reworkable vacuum scavenger waste if the number of ends down was greatly reduced, and consequently the amount of waste due to other sources increased proportionately.

In order to isolate and evaluate this waste, a situation where no ends came down had to be simulated. That being almost impossible, the ends down had to be kept at a minimum and put up almost immediately, and the waste caused by them had to be measured and accounted for.

Test. One spinning frame was selected for testing. Spinners and all other operators were asked not to perform any work on it for the duration of the test. All ends were put up, and all roving bobbins which were about to run out were replaced with full ones in order to eliminate any creeling during the test. The vacuum scavenger collection box was emptied completely.

The actual test then got under way. Continuous rapid patrols around the one frame were made by the operator performing the test; she pieced up each broken end as soon as it was encountered.

Each patrol was timed with a stop watch, and it was found that the average round during which no ends came down lasted .50 minutes. Hence, each end down which was the first one encountered during any particular round was presumed to have been down an average of .25 minutes before the piecing-up process started. All ends down were recorded and classified as to the number of ends down per patrol.

At the conclusion of the test, the vacuum scavenger collection box was again cleaned out carefully. All the waste which had collected during the test was weighed. The amount of waste chargeable to ends down was computed as follows and subtracted from the total:

$$\frac{\text{Front Roll RPM} \times \text{Front Roll Dia.} \times 3.1416 \times (1.00 - \%\ \text{Contraction}) \times \text{No. of Ends Down} \times \text{Avg. Min. Down per End}}{36 \times 840 \times \text{Yarn Count}} = \text{lb of waste chargeable to ends down}$$

The remainder of the collected waste was then expressed as a percentage of the total production of the entire frame during the test period.

Inasmuch as only one frame could be tested at a time, a number of tests had to be performed before a sufficient amount of data had been obtained. In order to determine the differences between different yarn counts and twist factors as well as various types of stock, the tests were concentrated on the counts as shown in Table 1, each of which was checked for a total of four hours.

Table 2 shows the summary of all the tests on the different counts:

Tables 3, 4, 5, and 6 show these data rearranged to isolate the possible effects of the type of stock, the length of the draft, the amount of twist, and the yarn count.

Conclusions. In analyzing the groupings we came to the following conclusions:

Staple Length: While Table 3 shows a higher percentage for the longer staple stock, we believe that this increase is due to the factors isolated in Tables 4 and 6 (length of draft and yarn count). One of the counts made of the 1 1/16" staple has the longest draft, and both counts are the highest of the group. It is interesting to note that the part waste stock did not show any increase.

Hence, it is our opinion that the length of the stock had no appreciable effect on the amount of vacuum scavenger waste not due to ends down. (Staple length has a definite effect on the amount of fly removed in the preparatory processes. In this connection it should be pointed out that all the stock involved in these tests had been treated by the addition of oil at the pickers.)

Length of Draft: There was a definite correlation between the increase of drafts and the increase in the proportion of fly in vacuum scavenger waste.

Twist: While there was a slight decrease in waste as the twist multiplier dropped from 4.60 to 3.80, we do not consider this difference significant. There might be a greater difference if the range of the multipliers was extended upward or downward, but for the two multipliers used in our study there is no practical effect.

TABLE 1

Yarn Count	Stock	Draft	Twist Factor
36s	1 1/16"	29	3.80
32s	1 1/16"	26	4.60
20s	1"	27	4.60
18.5s	1"	25	3.80
14s	1"	19	4.60
9.5s	1" Part Waste	13	3.80

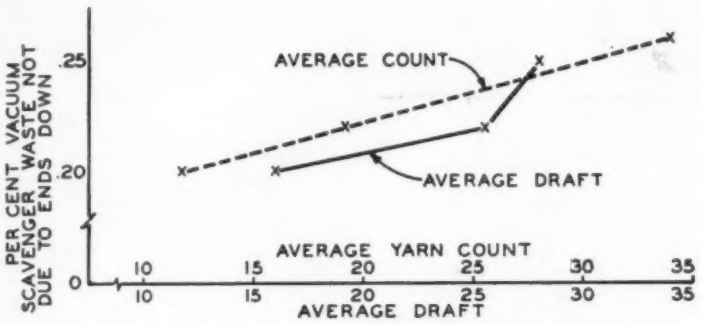


FIG. 1. The correlation of the increase in waste with an increase in draft and yarn count is illustrated graphically above.

TABLE 2

Yarn No.	Total Lb of Vacuum Scavenger Waste Collected During Tests	Lb of Vacuum Scavenger Waste Due to Ends Down	Lb of Vacuum Scavenger Waste Not Due to Ends Down	Production on Frame During Tests	Per Cent Vacuum Scavenger Waste Not Due to Ends Down
36	.0613	.0093	.0520	18.47	.28
32	.0499	.0030	.0469	19.65	.24
20	.0914	.0066	.0848	37.28	.23
18.5	.1083	.0098	.0985	46.60	.21
14	.1331	.0091	.1240	63.61	.19
9.5	.2353	.0633	.1720	82.67	.21
					Average .22

Yarn Count: We believe that the figures for the longest staple in Table 3 are actually due to the higher counts spun from this staple. As shown in Table 6, there is a tendency for the waste percentage not due to ends down to increase with an increase in yarn count. This appears to be due to the fact that the production in pounds is less in the case of the higher counts, and that with increasing fineness the rate of production decrease is greater than the rate of decrease in vacuum scavenger suction pickup. An overlapping factor, of course, is presented by the fact that as counts are higher, the lengths of drafts tend to increase.

The correlation of the increase in waste with an increase in draft and yarn count is illustrated graphically in Figure 1.

The waste which was removed from the vacuum scavenger collection box at the completion of these tests consisted almost solely of lint which was not due to ends down. In the case of the 32s the amount chargeable to ends down was only 6%, with most other counts staying below 10%. Only the 36s (15%) and 9.5s (27%) had more than 10% waste content which was due to ends down.

This fact was confirmed by an examination of the waste. It consisted mostly of short fibers, ¼" or less in length, though there were a few longer fibers scattered throughout. This waste also contained a considerable amount of trash which had not been removed in the preparatory process. If isolated, as was done in this test, this waste product is not suitable for refeeding into the mill along

TABLE 3

Yarn Counts Combined According to Stock

	Lb of Waste Not Due to Ends Down	Lb of Production	Per Cent Waste Not Due to Ends Down
2 Counts with 1 1/16" Staple Length	.0989	38.12	.26
3 Counts with 1" Staple Length	.3073	147.49	.21
1 Count with 1" Part Waste Staple	.1720	82.67	.21

TABLE 4

Yarn Counts Combined According to Length of Draft

	Lb of Waste Not Due to Ends Down	Lb of Production	Per Cent Waste Not Due to Ends Down
2 Counts with Drafts of 27 and 29	.1368	55.75	.25
2 Counts with Drafts of 25 and 26	.1454	66.25	.22
2 Counts with Drafts of 13 and 19	.2960	146.28	.20

TABLE 5

Yarn Counts Combined According to Twist Multiplier

	Lb of Waste Not Due to Ends Down	Lb of Production	Per Cent Waste Not Due to Ends Down
3 Counts with 4.60 T. M.	.2557	120.54	.21
3 Counts with 3.80 T. M.	.3228	147.74	.22

TABLE 6

Data Combined According to Yarn Count

Yarn Counts	Lb of Waste Not Due to Ends Down	Lb of Production	Per Cent Waste Not Due to Ends Down
36s and 32s	.0989	38.12	.26
20s and 18.5s	.1833	83.88	.22
14s and 9.5s	.2960	146.28	.20

with the regular stock.

However, inasmuch as in actual practice this type of waste occurs only together with lint due to ends down, and is submerged in the latter at the ratio of 3 or 4 to 1, the lower quality of this fly is not too important. Actually, the higher the number of ends down, the better is the reworkable quality of vacuum scavenger waste.

Waste Standard. The main value of this study for our purpose lies in the fact that it enabled us to set a standard for our vacuum scavenger waste. If we expect 40 ends down per 1000 spindle hours, and each end stays down for 12 minutes, we get: $\frac{40 \times 12 \times 100}{1000 \times 60} =$ .80% for our standard for waste due to ends down only. Adding to this the average results of our study (which may be adjusted periodically to conform with change in average yarn count or drafts) we obtain .80% + .22% = 1.02% for our overall vacuum scavenger spinning waste standard.

The Current Story of Stretch Yarns

BY ELDON STOWELL
Universal Winding Co.

ABSTRACT*

STRETCH YARNS are made with thermoplastic, continuous yarns, primarily nylon, Dacron, and Orlon. Stretch yarns require that the fiber be capable of being deformed and reoriented or twisted under heat and tension, and have rather high hydrophobic qualities —they must be thermoplastic in the truest sense.

It appears possible to make other fibers, such as Arnel triacetate and even glass, into stretch yarns; but up to the present only true thermoplastics can be used. Regenerated cellulose yarns — rayon and acetate—do not show good permanent stretch, because of their high water absorption. These fibers produce a good stretch yarn in the dry state, but the permanence of set is poor—the stretch pulls out when tension is applied to the yarn in the wet state.

Certain work is in progress with staple yarns, using resins and other chemical treatments. To date, we have not been able to achieve a good stretch yarn from any all-natural fibers. It is, however, not out of the realm of possibility to hold together the noncontinuous fibers of a staple yarn with certain resin techniques.

*From a paper presented at the Fifth Canadian Textile Seminar, Kingston, Ontario.

All-Staple Stretch Yarn. In the case of an all-staple stretch yarn, pre-twist is necessary, for in the false twist method, the fibers will fall apart as the zero or no-twist point is reached, unless they can be chemically treated to hold them together while passing through the twisting zone. Blends, of course, are being made commercially today, of either ply yarns or core yarns; and the use of a thermoplastic, continuous filament, with non-thermoplastic staple such as cotton and wool, is well accepted.

Research into the possibility of making a stretch yarn from all-staple fiber blends also shows great promise. It seems that at least 50 per cent of the thermoplastic fiber is required to obtain a good stretch or bulk yarn.

Helanca Process. The first commercial process for making a stretch yarn was developed in Europe by the Heberlein Corp. The product is known by the trademark "Helanca," and involves the twist, heat-set, and untwist method for producing a stretch yarn.

In this process, nylon and other continuous yarns are first redrawn onto a suitable uptwister package, and then twisted a high number of turns on a conventional uptwister. For example, for 70-denier nylon, about 65-75 turns in one direction are inserted.

The packages are then steam-set for several hours at temperatures in excess of 220 F. Due to the thermoplasticity of fibers such as nylon, the action of the steam sets in the twist. At this stage, we might say that it is really a steam-set, stable, twisted yarn, but not a crepe yarn. However, the yarn is then redrawn again and untwisted a similar number of turns in the opposite direction.

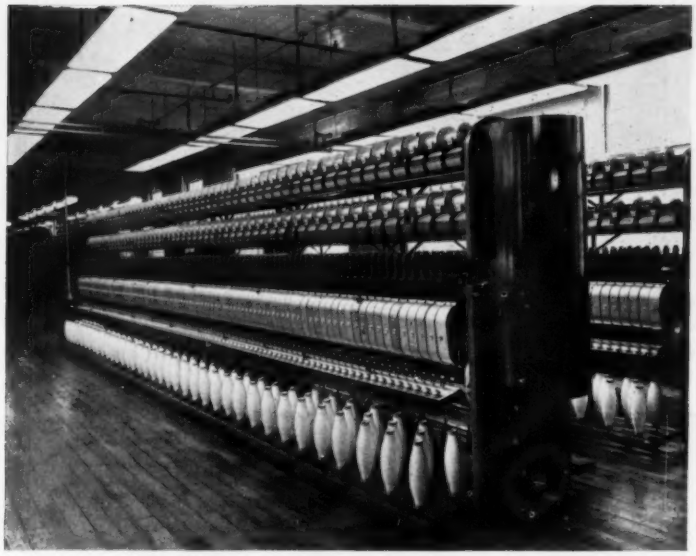
Superloft One-Process Method. The Universal Model 550 is a false twist, continuous, one-process machine.

The supply package is placed well below the machine. The yarn is threaded through a disk or other tensioning device, and then is wrapped around the surface of a positively driven feed roll. The amount of tension on the yarn is controlled for the whole machine

Stretch and Bulk Characteristics of Various Continuous Yarns

	Stretch		Bulk	
	Property	Present Status	Property	Present Status
Polyamides	Excellent	Commercial	Excellent	Research
Polyesters	Excellent	Commercial	Good	Research
Acrylics	Poor	Research	Excellent	Semi-commercial
Triacetate*	Good	Research	Good	Research
Acetate**	Fair	Research	Fair	Research
Viscose**	Good	Research	Good	Research

*Partially permanent in wet state.
**Not permanent in wet state.



A ONE-PROCESS MACHINE for continuous, high-speed production of stretch yarn is shown in this mill installation photo. Called the Superloft machine (Universal Model 550), it will produce on 216 spindles over 400 pounds of stretch yarn a week, according to the manufacturer.

by the overfeed, or underfeed, of the roll. The percentage of overfeed is controlled by a changeable gear at the end of the machine.

From the top of the feed roll, the yarn passes through a heated zone, during which time twist is being inserted. The direction of that twist is controlled by the direction of the belt drawing the spindle. Contact heat is imparted to the yarn. The contact time is, of course, a factor of spindle speed and twist. The larger the yarn, the longer the theoretical required contact time to achieve the proper heat setting. This is controlled by constant yarn take-up speed, varying the heat input.

Denier per filament is also a factor, as the greater the filament size, the more the necessity of longer contact time by slightly higher heat in order to get a complete yarn stabilization and thermo-setting.

The yarn passes through a hollow spindle at the top of which it is threaded twice around an exit, or restricting wheel. The wrapping of the exit wheel is very important. For S twist it is wrapped one way and reversed in the case of Z twist. Thus, twist in one direction is imparted to the yarn, which is heated into a thermoplastic state during this actual twisting. The exit wheel in reality reverses the direction of twist and the yarn is taken up by a friction drive on an ironhead spool.

Upon leaving the exit wheel in a cool stage, the twist is reversed so that the resultant yarn has zero twist. Actually, we do not, in the case of Z twist, go by the zero point so that the one-half turn producer's twist remains in finished yarn.

In ply yarns combining S and Z twists, the torque forces are usually balanced on a conventional down-twister, and the yarn is then coned.

Production is about 400 pounds per week for a 216-spindle machine running 70-denier yarn.

Effect of Filament Size. In a relaxed state, a stretch yarn is a collection of filament distortions which might be referred to as snarls. These distortions vary in length, and the greater the amount of entanglement or the length of snarl, the greater the stretch and bulk.

The higher the twist, the longer and hence the more distorted the tangle, and the greater the stretch and bulk. We have recently experimented with different filament sizes. We have known that a 70/17 nylon would give a different and lower bulk and stretch than a 70/34. We feel that the higher stretch is caused by the fact that there are twice as many filaments, twice as many theoretical snarls, and although not twice the bulk, at least an appreciable increase in bulk between the two yarns.

Although very acceptable yarns have been made, we have not been able to get quite as good stretch yarn from a low denier size, such as 15/3, and especially one with a high denier per filament, such as a 260/17 nylon. We find that we don't have enough filament distortions per cross section with a low filament yarn, so that we get less bulk and stretch than with a high number of filaments.

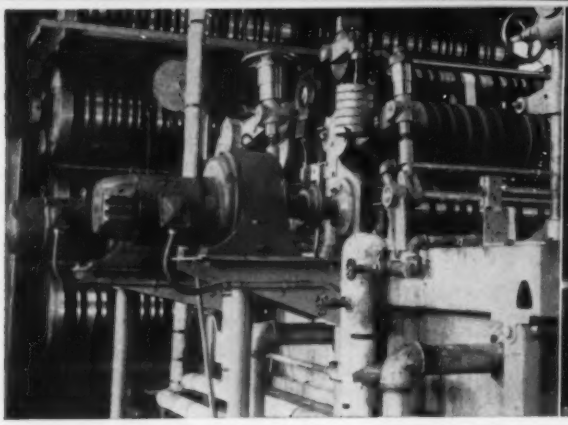
Stretch or Bulk? The requirements of the end use determine how much stretch or how much bulk is wanted. For example, in a sweater we want maximum bulk but very little yarn stretch; in a girdle, maximum stretch, minimum bulk. Commercial success in men's hosiery was due to both stretch and bulk.

In present-day man-made fibers, a clear-cut division is becoming increasingly apparent between what is meant by stretch yarn and what classification is made for bulk yarns. It has been shown that as stretch is produced, so is bulk. All stretch multifilament yarns are bulk yarns. The reverse is not necessarily the case. We do not have stretch characteristics in such yarns as high bulk nylon made by the Ban-Lon process, or lower bulk Taslan types of viscose and acetate yarns.

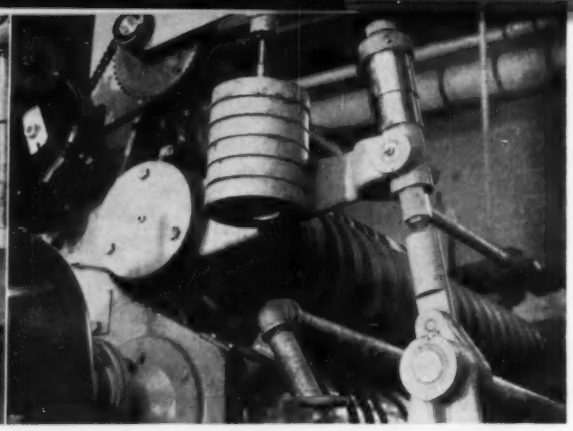
Grading Stretch Yarns. Stretch yarns can be graded on the basis of three yarn properties—per cent elongation, crimp retention, and strength retention. For a 70/2 nylon stretch yarn, the suggested minimums as adopted by the half hose trade are 200 per cent, 70 per cent, and 75 per cent, respectively.

Future. Stretch yarns are being used today in a wide variety of applications where size and comfort are important. Recent developments which are commercial include women's full-fashioned ho-

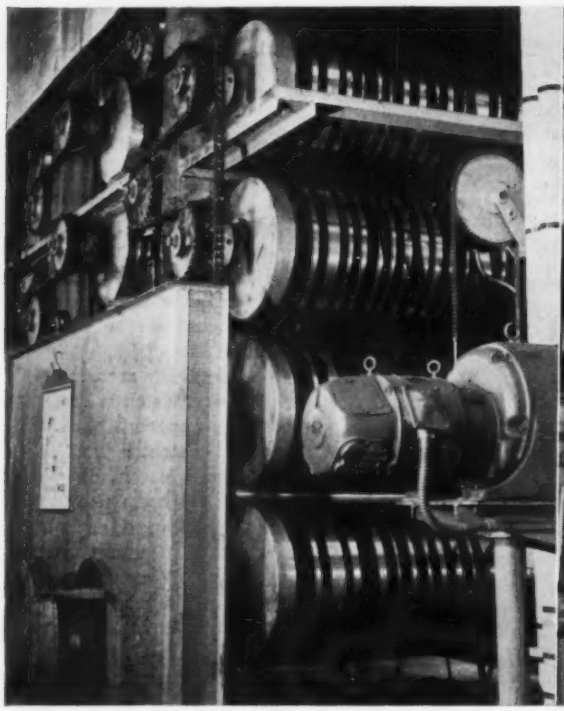
(Continued on page 212)



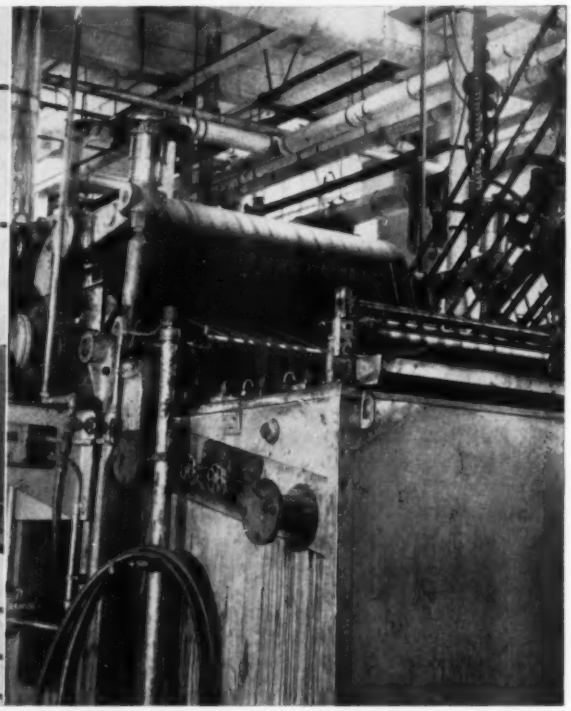
ENTERING END scour and rinse boxes. Drying cans in background. Rheostat shown at top center. Gauge shows amount of pressure on rolls.



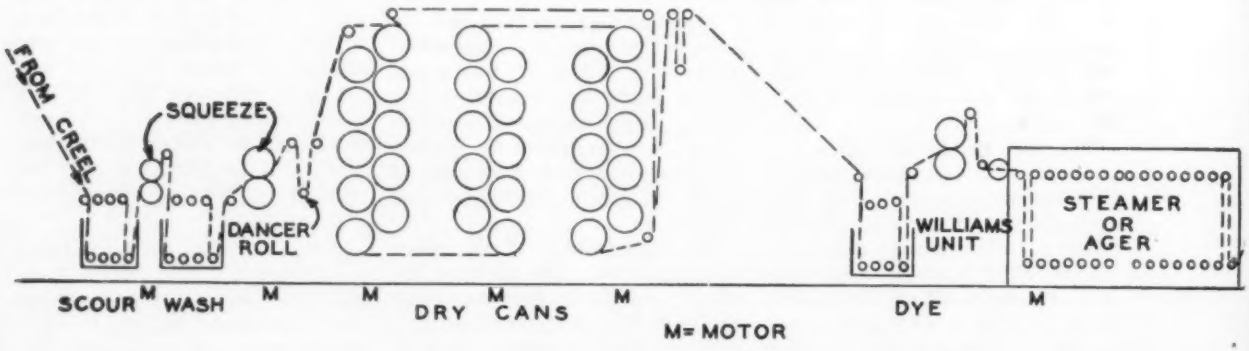
CLOSE-UP OF GAUGE on Microset device for setting correct or desired roll pressure.



DRY CANS which follow initial scour and wash. Note chain drive. The yarn passes around these cans three times.



THE WILLIAMS UNIT in the range requires only 160 gallons of dye mix, as compared to 21,000 gallons on the indigo machine.



Lane Dyes Fast Color Denim Warps on Pad Steam Range

STAFF PREPARED EXCLUSIVE

A LONG CHAIN warp dyeing machine which dyes on the pad-steam principle has been installed for several months and is operating successfully at the Lane Cotton Mills Company, New Orleans, La. It produces fast-color warps for blue denims.

The new dyeing range serves the same purpose as the existing indigo chain dyeing equipment; but, unlike indigo-dyed goods, the yarn run on the pad-steam range is dyed through the entire diameter, instead of receiving only a surface coating of dye.

Thus, trousers of denim goods made from warps dyed on the pad-steam range do not show whiteness at the knees because of abrasion and loss of dye, as when indigo is applied by the conventional method.

Furthermore, a fast dye is used by Lane. The fast color permits garment manufacturers to style their blue denim garments with white or other light colored trimmings, and offers the public a garment that, even though containing blue denim and white goods, can be laundered without fear of fading or bleeding, provided accepted laundering methods are adhered to.

Quality Will Be Future Demand. The pad-steam method of producing the true blue is a more costly process, officials at Lane explained, but the quality of the product is much higher. They believe that in the not-too-distant future the American public, including those who wear blue denim at the beach or in the factory, will be demanding higher quality denim and will expect to pay a premium for denim clothes which retain their color and do not readily show abrasion. Lane is prepared to furnish goods to cutters who will cater to this trade.

However, Lane is continuing to operate the conventional indigo chain dyeing equipment to furnish a quality conventional denim product made from this dye system; Lane will get its return on the investment in the pad-steam range from the premium for fast color goods.

Versatility of Range. Lane's pad-steam dyeing range was designed especially for long chain dyeing of fast blue warps. The mill does no piece goods dyeing. Although engineered for chain warps, piece goods dyeing will be possible if minor alterations are made in the range.

Range Layout. Essentially the range consists of a scouring unit, drying section, Williams unit, steamer (or ager), a series of eight wash boxes (compartments or vats), and a final drying section.

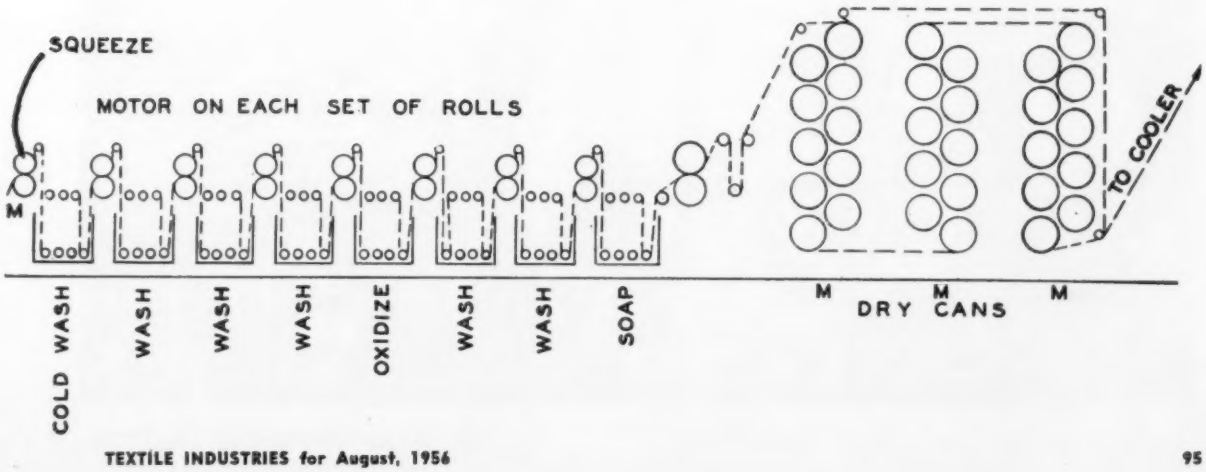
Each section of the range has its own driving motor, synchronization coming from dancer rolls placed between the various operations. A total of twenty motors is used.

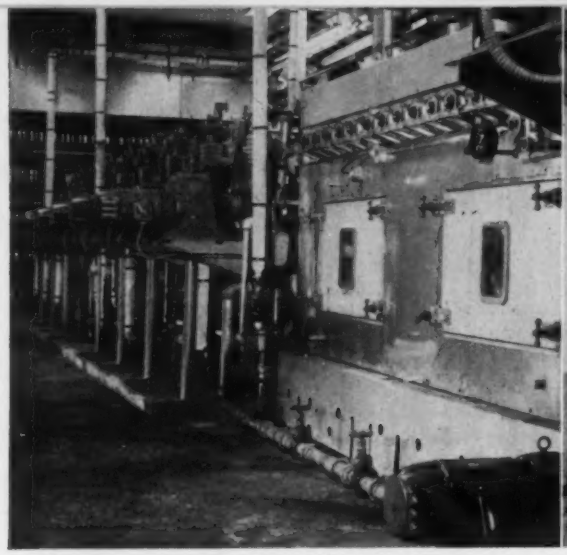
Automatic controls are located at strategic points on the range to control dye or chemical flow and temperature (see list in box on page 96 for location and type of controls).

In its travel through the range, the yarn is handled by positively driven rolls, either directly from the motors or through chain drives.

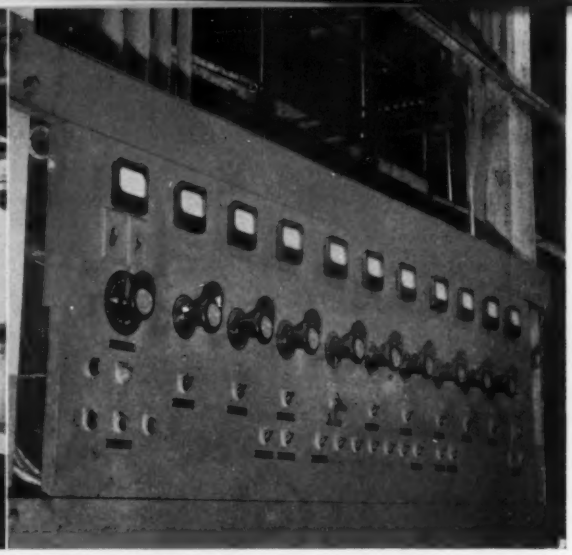
The desired speed of the range is set on the control board by adjusting the speed of the master motor; from then on the dancer rolls control the remaining roll speeds to keep the yarn passing through with adequate tension.

Yarn Processing Details. The dyeing process on the range is as follows: first compartment, scour yarn; squeeze; second compartment, hot water rinse; thirty dry cans, 50-lb pressure, three turns





AGER and series of eight compartments. Final drying can sections in background.



PANEL BOARD for operation of the pad steam range was built by the mill from parts furnished by Reliance.

Automatic Controls on the Pad Steam Range

1. Dancer rolls between all operations where it is necessary to control tension.
2. Scour compartment — level control, temperature control.
3. Dry cans—50-lb pressure control on all cans.
4. Williams unit—dye level control, temperature control.
5. Steamer chamber — temperature control (also visual indicator).
6. Temperature controls and recorders at each wash.
7. Oxidation—temperature control and recorder, flow control, and visual sight glass.
8. Soaping—temperature control and recorder, flow control.

around cans; Williams unit, dye application; squeeze, 9-ton pressure; steamer, develop and age at 220 F (water seal is between steamer and steamer exit). The yarn then passes through the series of eight compartments.

The compartments requiring fixed temperatures are controlled by automatic instruments; those requiring chemical control have liquid level and flow control.

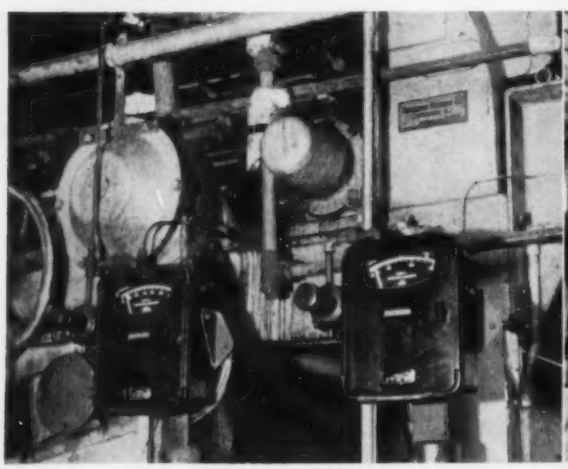
From the series of compartments the yarn is squeezed and passed over three stacks of 10 dry cans each, from which it goes to the coiler.

Thus far the only maintenance required on the machine has been the usual lubrication and a thorough and continuous cleaning program. Stainless steel rolls and cans are used. No trouble has been encountered since the range has been put on a production schedule.

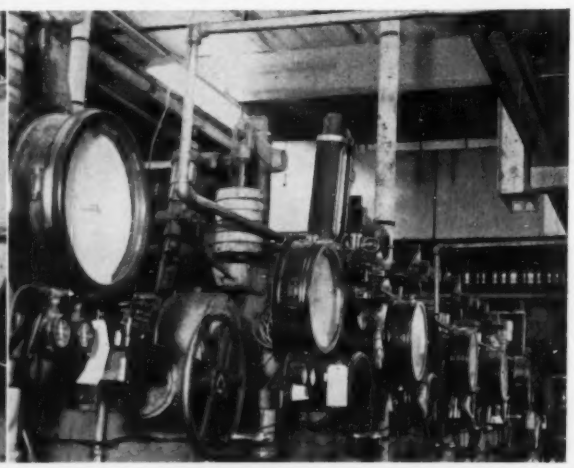
Interesting sidelights on the operation are that the yarn is easier to beam than yarn from the indigo machine because it opens up better; and that 21,000 gallons of dye mix are required for the conventional indigo dye machine, and only 160 gallons for the pad steam range.

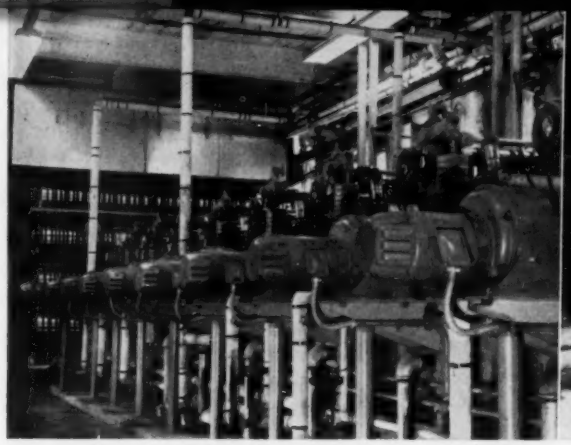
Suppliers. The pad-steam dye range for long chain warps was built by Morrison Machine Co. to specifications supplied by Lane Cotton Mills Co. with engineering assistance from McSpadden & Scantland of Charlotte, N. C. Rub-

TEMPERATURE CONTROLLERS (indicating type) on Williams unit and steamer.

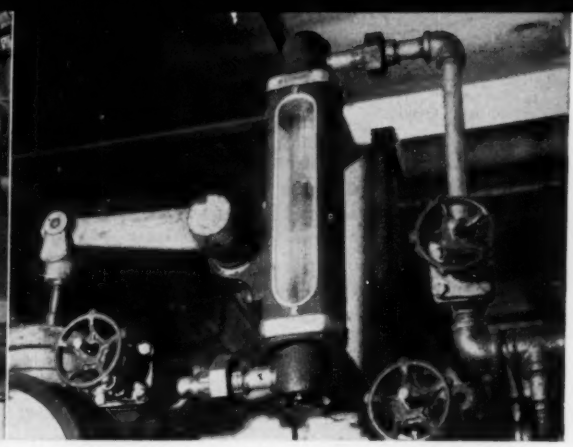


TEMPERATURE CONTROLLERS AND RECORDERS on the eight compartments following the steamer.





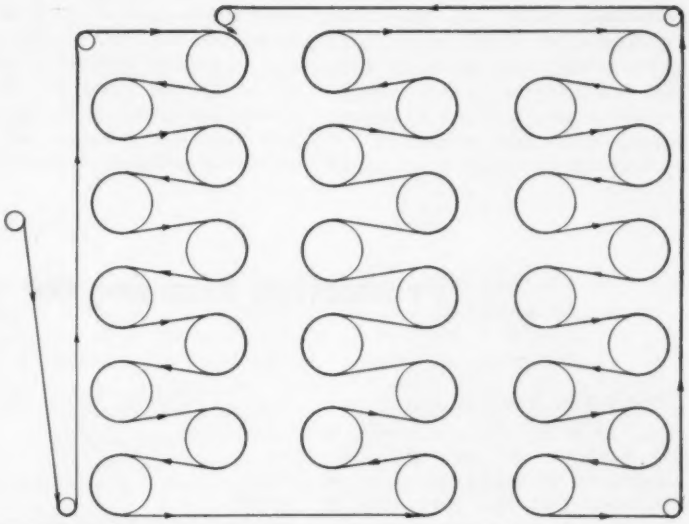
BATTERY OF MOTORS on series of compartments



FLOW CONTROL (with sight glass) on oxidizing unit.

ber rolls were covered by Raybestos-Manhattan; handwheel set pressure for rolls is by Microset. Drives are by Reliance.

The dye used by Lane is Denivat Everblue in liquid form, which is diluted by the mill; the dye is a product of Southern Dyestuff Corp., and is classified by Southern as a vat dye. The Foxboro Co. supplied the controls.



THIS METHOD of sending the yarn around the drying section for three passes is used by Lane. When the yarn completes one pass, it goes back the same path twice more.

How Can a Small Mill Do Research?

BY WILLIAM A. NEWELL
Research Coordinator
School of Textiles
N. C. State College

ABSTRACT*

PERHAPS the first and best move that a small mill can make to undertake research, and the least expensive as well, is simply to develop the research potential in all of its men by developing sound research attitudes.

This isn't done by issuing a memorandum. The research outlook comes from training and encouragement. It comes from developing a questioning attitude, from willingness and freedom to experiment, from careful design and carrying out of experiments. Most important, it comes from the top. The results must be carefully followed and studied, and the application of successful work over a broad front must be carried through promptly. Too many mills are too busy losing money to bother about saving money.

Pilot Plant. As a means of carrying out more elaborate studies, a small staff may be assigned to experimenting in a small pilot plant All of our recommendations for improved carding have come from a small laboratory 20x25 feet in size, containing one card, one draw frame, one short roving frame, and a short spinning frame. Considering the value of the results that have come out of the investment involved, it remains a mystery to us why more mills don't do the same thing.

I might add here that Swiss mills, which spend about 1.0% of sales on research, or 10 times the amount U. S. mills spend, do a great deal of this pilot-plant work on their own problems. A Swiss machinery maker couldn't tell me what speeds and settings most mills use in carding, because each has developed its own to suit its

*From a paper presented at the annual meeting of the Southern Textile Association.

particular needs.

Textile Schools. Another means of applying research is to call on the assistance available to you from textile schools, government laboratories, and other nonprofit research organizations. Research is useless unless it is used, and these groups stand ready to assist you in making use of the vast amount of existing research results backed up in the pipelines.

Sponsored Research. Still another means of conducting research is to have it done for you—especially work on long-range problems for which many mills have neither time, adequate money, nor equipment. Every textile school in the U. S. has a research group of one type or another.

At these schools, research can be sponsored by groups of mills, at a small net cost to each.

Support Research Fund Drives. Still another, and even less costly way of providing research benefits to your mill is to give your active support to the textile school in your state when it asks the legislature to make appropriations for textile research.

Fundamental Research. The type of research that I have been discussing and that most mills and schools do is termed applied research—research on existing processes and materials with a view to immediate application. The solution of applied research problems draws heavily upon our fundamental knowledge of the physical and chemical behavior of materials—knowledge developed in what is termed fundamental re-research, or research conducted primarily to develop new knowledge.

Fundamental knowledge in any field and especially in textiles, is far from exhausted. And it is on the discovery of new fundamental knowledge that future progress, even for the textile industry, rests.

For this reason, my final recommendation for research in the small mill is that the mill support the fundamental textile research being conducted by Textile Research Institute and the Institute of Textile Technology. The cost is low, and in proportion to mill size, every mill should invest in its own future through these efforts to discover new fundamental knowledge of textile materials and their behavior.

Production Planning for a Yarn Mill

BY HERBERT YOUNG
J. D. Woods & Gordon, Ltd.

ABSTRACT*

THE FIRST STEP in setting up a yarn mill planning system is to examine the incoming sales orders to determine the type of business that the yarn mill is handling. Usually there will be a certain percentage of stock yarn orders which the mill should be able to ship immediately from approved inventories, and a percentage of custom orders which will require a different type of planning and control.

Stock Yarns. In order to maintain suitable inventories of stock yarns a "potential" inventory system should be installed. The accompanying form illustrates a potential stock yarn card which is used for this purpose.

Under a "potential" inventory system, all incoming orders calling for stock yarns are immediately entered, even though the order may not call for delivery until sometime in the future. Similarly, all yarn mill orders issued to the mill are entered as they are released.

In this way the complete position on such yarns is indicated to the planner and he is in a position to issue replacement yarn mill orders in sufficient time to ensure that he will be able to meet all sales requirements.

This differs from the usual inventory system in that sales orders are not usually entered until the yarn has been produced.

In addition to having an approved inventory quantity which is the maximum allowed, an order point and an order quantity should be established for each stock yarn. The order point, which should be expressed in pounds, would be set so that the inventory would not be completely depleted before the yarn mill order was processed. A suitable safety factor should be included to cover excessive sales or-

POTENTIAL STOCK YARN CARD

Approved Inventory		Order Quantity		Order Point	
Date	Order No.	Promised Delivery Date	Yarn Mill Orders Placed : Black Sales Orders Rec'd : Red	Available Balance Red = To be prod. Black = Surplus	
Count		Color		Put-up	

*From a paper presented at the Fifth Canadian Textile Seminar, Kingston, Ontario.

der quantities or failure in the mill to complete a yarn mill order on time.

The order quantity should be the economical number of pounds to be scheduled when the order point is reached.

Custom Yarns. On "custom" orders which do not call for stock yarns, each item is usually scheduled on a separate yarn mill order. The promised shipping date is normally based on the scheduled spinning date plus the time necessary from spinning to shipping. The process times depend on the quantity and type of yarn being produced, and must be worked out before any system can be put into effect. And, of course, the production control department must know the process times.

On custom orders, firm shipping dates should be given to the sales department, particularly if the delivery date is different from that requested by the customer.

When "rush" and "at once" orders are not excessive, all custom orders should be scheduled immediately on arrival. If the spinning has been completely allocated, the sales department should decide which orders are to be moved back for rush orders.

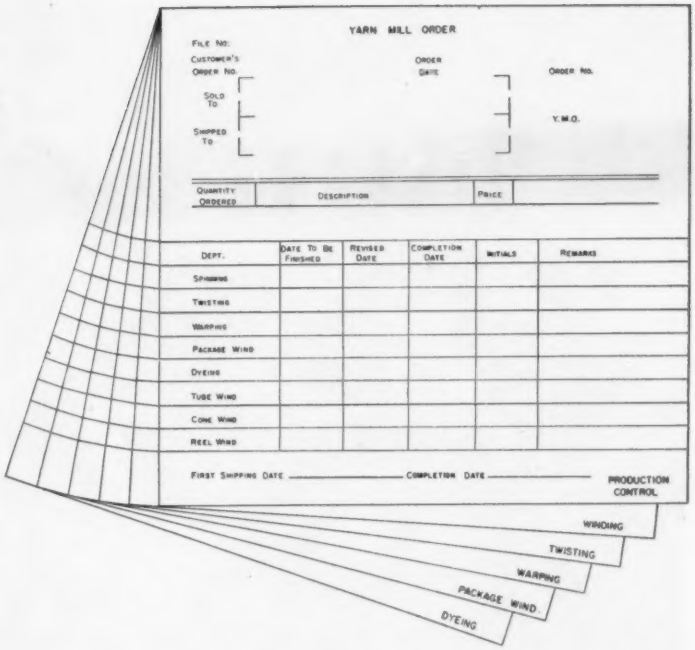
Yarn Mill Order. A yarn mill order (see illustration) is issued for each lot to be processed through the mill. These orders should be based on sales orders for custom yarns and a potential inventory system for stock yarns.

Yarn mill orders are issued by the production control department to the various mill departments, preferably in color, for example:

1. Production control — white (master).
2. Twisting—yellow.
3. Warping—blue.
4. Package winding—pink.
5. Dyeing—green.
6. Packaging—orange.

It is the responsibility of each department head to see that the order goes through his department as planned, or to notify the production control department if that is not possible.

Overdue orders are kept in the front of each department's file, and are given priority. As each order is completed, departmental copies are initialed and given to the production control department.



The production control department files the master yarn mill orders on a completion date basis, and attaches the departmental copies to it as they are received. Separate files are maintained for each department, and the master and copies are moved from file to file as the order progresses through the mill. The production control department is thus able to keep a close watch on orders by watching the dated files for each department.

Each Monday the production control department issues a "weekly yarn mill order delay report," based on the file of mill orders.

In addition to the delay report, the sales department is notified during the week whenever an order is delayed to such an extent that a delivery promise will be affected.

Spinning Program. A spinning ledger which indicates the weekly and total load on the spinning department by type of spinning is maintained by the production control department. The key steps in maintaining the ledger are:

1. As each yarn mill order is prepared, the yarn mill order number and the number of pounds required are entered under the proper type of spinning.

2. Each Friday a weekly spinning program for the next week is issued to the spinning department, based on sales by yarn counts, with an allowance for rush orders expected.

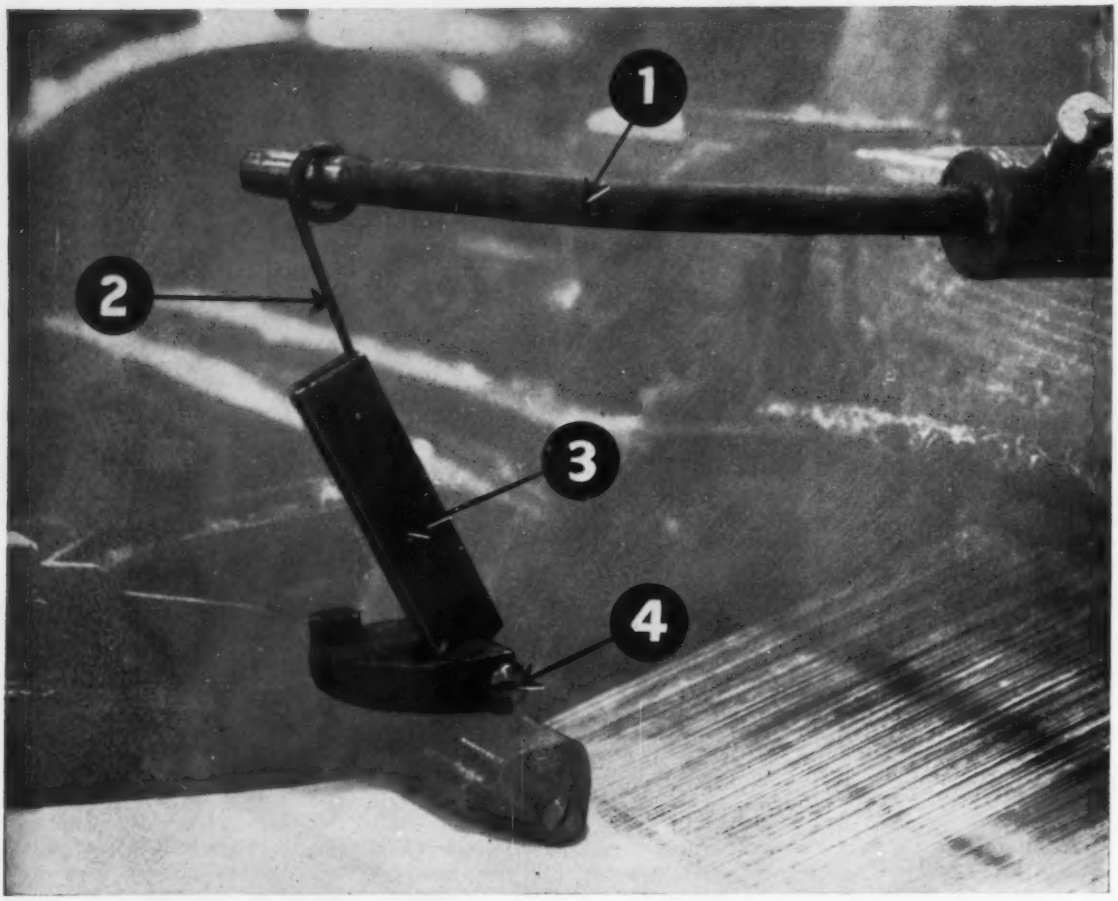
3. Weekly spinning production is reported by the spinning department to the production control department every Monday morning.

4. Whether or not the present week's program is to be altered is decided on the basis of the success or failure of the previous week's program.

5. If spinning and carding capacity is available, the program may be increased during the week to handle unforeseen rush or custom orders.

6. The spinning ledger is adjusted to the actual position at every monthly process inventory period.

7. The carding department works closely with the spinning department to produce the amount of roving which will keep the spinning frames from shutting down. A weekly roving program which is quite similar to the spinning program is issued each Friday.



THE ROBERTS ANNISTON SELVAGE LOOP RETAINER MOUNTED ON A LOOM. Note that it is easily attached to the temple by one bolt. Numbered parts are (1) guide rod; (2) retainer wire (for retaining filling loop); (3) guide tube; (4) pivot pin hinge (same as used in the temple roll). When this attachment is used on the loom, cloth is manufactured which has the same amount of stretch in the selvage as in the body of the cloth. No double ends or fewer double ends are needed, depending on the warp yarn count; experience indicates using two double ends in each selvage on warp yarns 18s and finer. No wire passes through reed.

How the Roberts Anniston Selvage Is Made

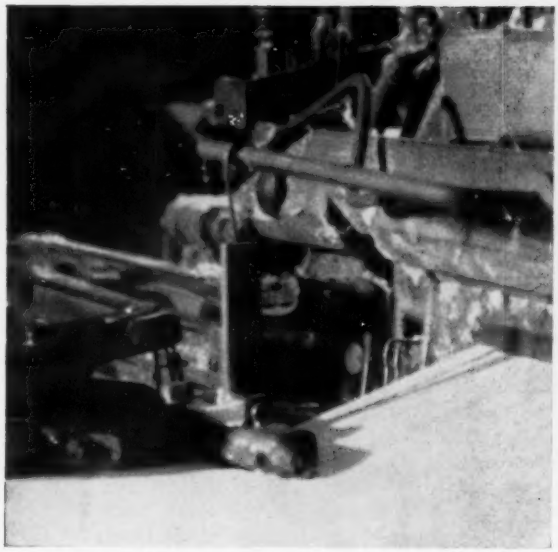
STAFF PREPARED
EXCLUSIVE

Device permits cloth to be made so that body and selvage stretch the same in finishing, coating, and calendering.

THE SIMPLE device illustrated on these pages is one which will permit cloth to be manufactured so that the selvage of the cloth will stretch the same amount as the body of the cloth during coating and calendering. Cloth made with the selvage attachment is being coated and calendered by the rubber companies which manufacture boots, shoes, and similar items.

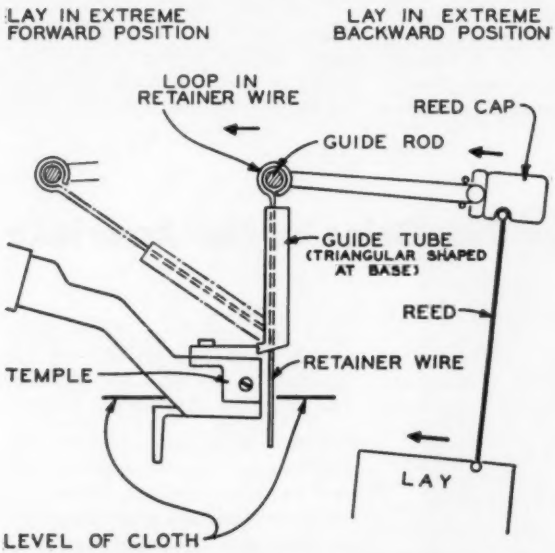
The selvage device makes what is known in the trade as the Roberts Anniston selvage. "Roberts" is for Homer F. Roberts, the inventor; "Anniston" is for the town of Anniston, Alabama, where Mr. Roberts was working when he developed the attachment. The inventor is now general superintendent of the Geneva (Ala.) Cotton Mills and the Bama Cotton Mills of Enterprise, Ala. The information contained in this article is based on experience at those two mills, though the Roberts Anniston selvage is being made in other plants on a production basis, and is being made on an experimental basis in several other mills.

Why Different Selvages for Coaters is Necessary. For many years the coaters of fabrics have had difficulty and losses in their coating and calendering operations because the cloth, which of necessity must be processed in the coating plant under high tension, would break at the selvage and

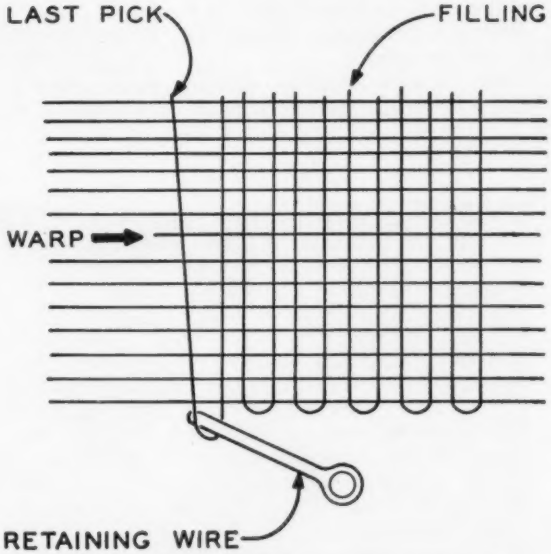


VIEW SHOWING POSITION OF GUIDE TUBE and retainer wire when lay is on back center.

VIEW SHOWING POSITION OF GUIDE TUBE and retainer wire when lay is on front center.



THIS ILLUSTRATES HOW THE SELVAGE LOOP RETAINER is attached to the loom, and how it operates. Solid black lines indicate that the lay is in the extreme backward position (back center on crankshaft) and the retaining wire is in position to engage the filling. Dotted lines show the lay in the extreme forward position (front center on crankshaft) and the retaining wire has moved out of the path of the filling.



THIS SIMPLIFIED SKETCH shows the position of the retaining wire after the shuttle has been picked. Note that the retaining wire and the filling are drawn toward the edge of the fabric; the retaining wire is supporting the filling until it no longer needs support, and is drawn into the cloth.

split across the cloth. The breaking was caused by the selvage of the cloth stretching less than the body of the cloth, and since the body of the cloth must have the required tension so that a good coating job is done, chance had to be taken that the selvage would hold under the high tension applied.

To reduce the problem of breaking, the coaters purchased from the weaving mills a fabric with a "loop" selvage. This is made with a piece of piano wire or strip of nylon passing through the reed and into several picks of the cloth so that the filling actually is woven around the wire. The wire or nylon is so attached to the loom that after the loop selvage is made and several picks have been placed in the cloth, the cloth moves forward with the action of the loom and the wire is automatically withdrawn,

being attached to the loom.

Weaving Mill Objections to Wire-Woven Loop Selvage. Cloth made in this manner is successfully coated, but is more costly to the weaving mill and therefore more costly to the coaters. The weaving mill must either purchase a special reed for use with the wire, or cut out the dents in a reed and thereby make it useless for any purpose other than running narrower goods or for making loop selvages.

Furthermore, the shuttle must pass over the wire, causing wear on the shuttle. It rubs against the raceboard, and wears it.

Often the wire or nylon breaks; this requires the time of the fixer and stoppage of the loom until the wire is replaced. Occasionally a piece of the broken wire remains in the cloth to cause injury to a clothroom employee or damage to a clothroom shear.

The Roberts Anniston selvage device eliminates the foregoing objections by the weaving mills to weaving loop selvages with wire because the new device does not rub against the raceboard, does not pass through the reed, and the shuttle does not touch it. There is no wire to break in the cloth.

Operation of Roberts Anniston Selvage Device. Basically, the device is a selvage loop retainer which supports the newly inserted filling until it can be woven into the cloth and can be supported by the cloth. Thus, the use of additional ends in the selvage (the usual practice to strengthen the selvage while weaving) or the use of ply ends in the selvage is not necessary on heavy yarns and can be reduced to two doubling or two ply ends on each selvage on light fabrics.

Here is how the selvage loop retainer operates to make the Roberts Anniston selvage. A guide rod of any suitable type is secured to the reed cap of the loom. Freely suspended from the guide rod by a loop is a retainer wire which extends below the level of the cloth or warp threads in the loom and alongside the selvage ends. This retainer wire extends through a guide tube which is hinged and secured to the temple. The tube is free to rock back and forth in keeping with the motion of the lay.

The guide tube is so designed that when it is rocked forward by the forward motion of the lay, the retainer wire engages the filling. When the shuttle is thrown across the loom, the loop of filling and the retainer wire are drawn close to the edge of the cloth, but the retainer wire does not enter the cloth. When the retainer wire is again moved away from the selvage or edge of the cloth, the filling is drawn in to provide a smooth selvage and a cloth of uniform width.

From this it may be seen that the retainer wire serves to support the newly laid-in filling as it is inserted so that it will not be drawn too tightly into the cloth. When the

Pointers for Running High Bulk Orlon on the American

STAFF PREPARED

EXCLUSIVE

THE MORE critical points to watch in running high bulk Orlon on the American worsted system, according to one successful processor, are:

(1) Cleanliness
(2) Pins per inch in gill box or pin drafter
(3) Condition of pins
(4) Creels behind gill box or pin drafter
(5) Back draft on slubber
(6) Twist and tension on slubbers
(7) Clearers on spinning
(8) Front rolls on spinning
(9) Traveler size and shape
(10) Yarn handling.

Cleanliness. In this instance the term cleanliness refers primarily to the amount of fly, although the fibers must be kept free of oil and dirt.

Cleaning of rolls, clearers, blowing off machinery, and picking flyers should be done at frequent intervals. At the end of each doff, both top and bottom on slubbers are cleaned, as well as the flyers.

Twice during the doff, frames are stopped to clean off fly in one mill. Ring rails are thoroughly cleaned to remove fly and oil, and separators are also cleaned.

Cleaning when running Orlon amounts to approximately four times the cleaning necessary on cotton, Dacron, or nylon, especially if a first quality yarn is to be made. This aspect of cleaning is imperative and is a constant battle.

Pins Per Inch in Faller Bar. More pins per inch are necessary for this type of work because lack of cohesion among the fibers necessitates packing the fibers in the pins more tightly.

The correct number of pins is a point of controversy. Many mills use about 29 pins per inch on the finisher, 22 on the intermediate, and 18 on the breaker pin drafter.

Some mills use 22 on the finisher, 18 on the intermediate, and 18 on the breaker. Others use 34 on the finisher, 29 on the intermediate, and 22 on the finisher.

All of these arrangements have given good results on 2- and 3-denier fibers. It is necessary for the mill to experiment and determine the requirements for the lot of stock being run. An evenness test comes in handy to accomplish this determination.

Nip rolls must be set carefully in accordance with instructions.

Condition of Pins. Faller bars must be in perfect condition for best results. One bent pin may cause lumps to come through in the sliver. This condition is readily revealed in evenness tests.

filling has been inserted, the support that is conventionally furnished by heavier ends or more ends in the selvage is withdrawn (the retainer wire).

Other Uses for Selvage Device? Action of the device to hold the filling has brought up the question of the possible use of the loop selvage retainer on fabrics other than those which will go to the coating trade. For instance, would it be possible to use more tension on the filling in the shuttle to eliminate kinky filling, and prevent buttonhole selvages (often the result of too much filling tension) by using the attachment? The answer is that the loop selvage retainer has a number of possibilities that may be used by individual mills, but primarily it is to satisfy the customer demand of making a fabric with a selvage that will stretch the same as the body of the cloth.

Mills that wish to explore the possibilities of the device could furnish their customers different types of selvages because the attachment can be set to produce the selvage desired; mills that wish to eliminate a certain number of ends in the selvage and gain the spinning production could do so; or mills that wish to stop making ply selvages could do so, all depending on customer satisfaction.

The Roberts Anniston selvage has been used by coaters successfully on the following fabrics:

40", 35x26, 2.56 yard clean osnaburg
40", 32x23, 3.65 yard clean osnaburg
40", 48x48, 2.50 yard sheeting
40", 56x48, 4.30 yard sheeting

Setting. The device is set on the loom so there is ample play in the guide tube. Various types of selvages can be made, but if the buyer wants a smooth selvage, the retaining wire should be set so that it enters the selvage from ⅛" to ¼" inside the last dent used in the reed and goes below the fell of the cloth far enough (1 inch) so that the filling cannot fall off of its own weight when the loom is picking. From then on the device remains set until the fixer changes it.

The temple can be moved without adjusting the guide rod. Being simple in operation, no heavier job load for the fixer is necessary. In reality, the fixer's job is easier than with the wire loop selvage because in the new device there is no wire to break and replace.

Maintenance. With so few moving parts, wear is at a minimum. Occasionally a pivot pin (same as used in an ordinary temple) will have to be replaced if the attachment is not set to move freely; a touch of grease should be used on the pivot pin at time of installation, or when oiling the temple.

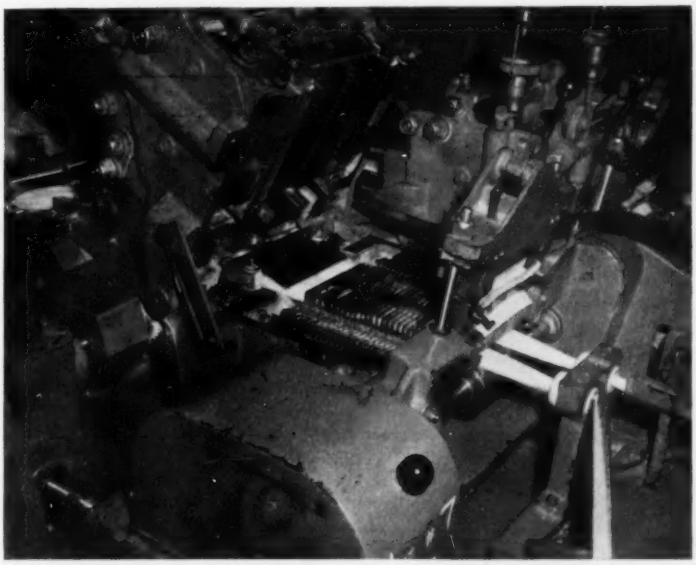
The selvage loop retainer has heretofore not been available on a commercial basis, but now can be made up on request to Homer Roberts, Geneva, Ala. It can be supplied for the D-356 and D-510 temples for cotton, and the D-446 and D-431 temples for rayon. It can be made to fit other temples if a special bracket is prepared.

Worsted System

Gill Box or Pin Drafter Creels. Lifting rolls must be kept in good condition on the intermediate and finisher processes because the sliver is so weak from lack of cohesion among fibers that it will stretch easily and cause thin places.

Standard driven octagon rolls in good condition serve well as lifters. The cans of stock should be placed as close to the machine as possible to reduce the length of stock which is required to support its own weight.

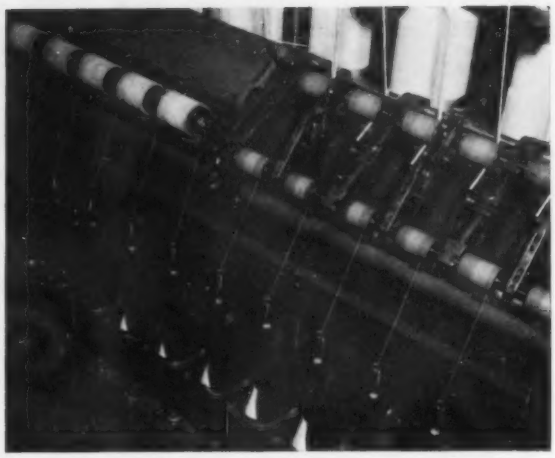
No rough places should be tolerated anywhere on top of the cans to snag fibers. Steel wool and wax help on cans as well as do lifter rolls.



MORE PINS PER INCH in the faller bar produce better results at pin drafter. Many mills use about 18 per inch on breaker, 22 per inch on intermediate, and 29 per inch on finisher. Experiments are necessary on each lot.

Back Draft on Slubbers. Back draft has been run successfully from 1¼ to 1½ on 2-denier and 3-denier fibers of from three to four inches staple length. Back draft affects evenness of roving made, and the correct amount of this draft depends upon the length of fiber being run.

The longer the staple, the more back draft is needed because there is a certain amount of false twist in the sliver behind the slubber, and this twist is harder to



KEEP LIFTER ROLLS (left) in good condition on intermediate and finisher process because sliver is so weak from lack of cohesion that it will stretch easily. Cans of stock should be placed as close to machine as possible. Revolving clearers (right) are a must on this type of work because waste is not as likely to get into the yarn as it is from the flat clearer. Clearers should be cleaned at least once each doff.

break loose to begin the draft. As staple length decreases, back draft may be decreased.

Twist and Tension on Slubbers. Often there is a tendency to run too much tension on slubbers, thereby stretching the roving. A mill changing from short fibers to long fibers usually ignores tension because roving made from long fibers does not show evidence of stretch as readily as roving made from shorter fibers.

Bobbins should be firm and not puffy. A Belger automatic roving tester comes in handy at this process for measuring twist and tension. A mark of 3½ to 4 indicates good tension and twist in roving in the range of 2.75 hank to 3 hank, worsted counts.

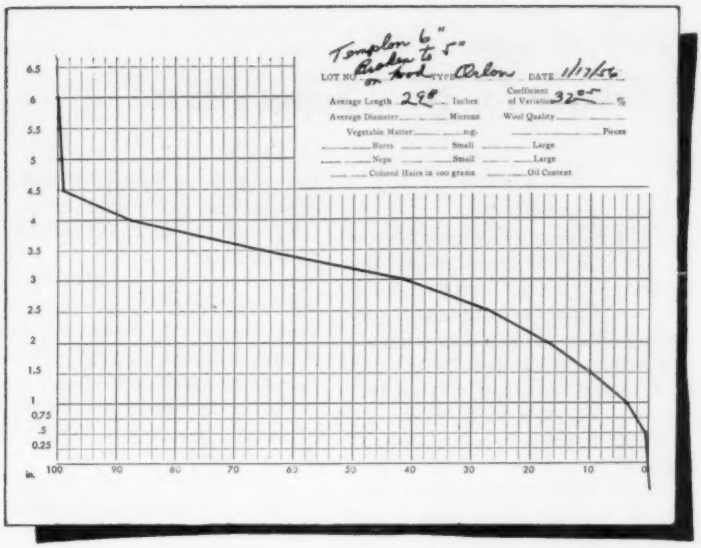
Clearers on Spinning. Revolving clearers are a "must" on this type of work, because waste is not as likely to get into the yarn as it is from the flat clearer. The clearers should be cleaned at least at the

Spinners' and Weavers' Check List for Orlon, Nylon, and Dacron

1. Maintain strict segregations between merge changes.
2. Check all tints for fugitivity by color and manufacturer (finisher would be glad to check). Fugitivity should be checked on yarns that have been twist set.
3. Maintain uniform rate of tint application from run to run and within a specified run.
4. Use only fugitive soap base chalks.
5. Maintain uniform percentage of reworkable waste from run to run.
6. Completely clean opening and carding lines, including blowing down and hand picking.
7. Maintain strict segregation between lots in which the finish and tint have been changed in carding or gilling.
8. Cover cans or jack spools to avoid contamination during storage.
9. If possible, curtain-off carding, pin drafting, roving, and spinning areas to eliminate contamination from fly.
10. Mark or paint all sliver cans and top of roving bobbins for identification purposes
11. Maintain strict segregation of lots processed with large changes in drafts in drawing and spinning.
12. Check for blend uniformity at least once a shift, and more often if possible, by checking weights of the various fiber components.
13. Maintain strict segregation of yarns spun from single creel versus double creel.
14. Segregate yarns which are out of limits in yarn count and twist. Daily checks on yarn count, twist, and strength are a must.
15. Maintain strict segregation of yarns that have different heat history. This is especially true of yarns that have been tinted.
16. Maintain uniform yarn tensions throughout processing (uniform stretch in slashing, winding, quilling, and warping).
17. Cover all yarns during storage (spinning bobbins, cones, and warps).
18. If waxes are necessary in slashing, be sure they are soluble and inform the finisher that yarns have been waxed and the type wax used.
19. Minimize the amount of grease on fabrics. Inform finisher if a piece contains excessive grease.
20. Adjust looms to minimize reed marks.
21. If fabrics are to be cross-dyed, be sure to minimize the neps during processing. Frequent nep counts on cards and in sliver are a must.

From a paper presented by James A. Newnam of the Textile Fibers Department, E. I. du Pont de Nemours & Co., Inc., at a recent meeting of the National Association of Woolen and Worsted Overseers.

DOFFERS' HANDS should be kept clean. This yarn was handled with greasy, sweaty hands. Bobbin on right is 100% waste.



DISTRIBUTION OF STAPLE LENGTH in a sample of Orlon prepared on the Turbo Stapler is indicated on the graph reproduced above. Below is the work sheet from which the curve above was plotted.

end of every doff.

A vacuum-type broken-end collector is considered essential on pin drafters, roving frames, and spinning. Rolls should be buffed at regular intervals to prevent them from getting too slick. Every three months, or when the rolls get slick, the job should be done.

Traveler Size and Shape. One manufacturer recommends half-round travelers (if a flanged ring is used) so that the fibers contact only the round side. This equipment produces good results.

The high bulk yarn is difficult to tie without slipping. If a mechanical knotter is used, the operator should pull the knot tight by hand before engaging the cone to the cylinder at winding. The knotter must be kept in the best condition possible so that clipped ends are maintained at uniform length.

Yarn Handling. Doffers' hands should be kept clean when handling the yarn, especially during hot weather or summer months, to avoid contact with perspiration. The yarn is so white that soiling is readily evident and is a critical factor in quality.

Perspiration attracts dirt and should be carefully avoided. From spinning to packaging, utmost care must be exercised to prevent soiling the yarn. Each cone must be carefully and separately wrapped.

Lot No. Templon 6" Broken on Hood 5" Date 1/17/56 195

Class Intervals Inches	Weight in Milligrams	Percentages	First Cumulation	Second Cumulation
8.5 - 9.0				
8.0 - 8.5				
7.5 - 8.0				
7.0 - 7.5				
6.5 - 7.0				
6.0 - 6.5				
5.5 - 6.0	.1	.02	100.00	653.62
5.0 - 5.5			99.98	553.64
4.5 - 5.0	3.0	.69	99.98	453.64
4.0 - 4.5	50.5	11.62	99.29	353.66
3.5 - 4.0	97.6	22.46	87.67	254.37
3.0 - 3.5	101.7	23.40	65.22	166.70
2.5 - 3.0	61.4	14.12	41.82	121.48
2.0 - 2.5	44.4	10.21	27.70	59.66
1.5 - 2.0	32.7	7.52	17.49	31.96
1.0 - 1.5	26.0	5.98	9.97	14.47
0.75 - 1.0	8.5	1.96	3.99	4.50
0.5 - 0.75	6.6	1.52		
0.25 - 0.5	1.6	.37	.51	.51
0.0 - 0.25	6	.14		
TOTALS .2304	434.7	100.0 = n Divided by n	F_1 = 654	F_2 = 2648

B The largest midpoint value for which a frequency is recorded = 5.75

m The Class — interval = 0.5 inch

2.58" $\bar{X}$ (Average) = B − m (F_1 − 1) = 5.75 − (5.5 − .5) 5.25 − 2.67

.955" σ (Std. Deviation) = m $\sqrt{\frac{2F_2 - F_1 - F_1^2}{n}}$ = .5 $\sqrt{52.54 - 6.54 - 42.77}$

32.05% (Coeff. of Var.) 100 x $\frac{\sigma}{\bar{X}}$ = .5 $\sqrt{3.65}$

.5 x 1.9105

A Primer for New Supervisors

BY C. C. AUTON

EXCLUSIVE

BACK OF every department in the mill where there is real enthusiasm on the job there is a foreman who radiates enthusiasm personally. Enthusiasm is contagious, and when enthusiasm is present, both quality and quantity of production stay at a high level.

Where there is a lack of this element of interest in the work, both production and quality of the work remain at low level, gossip and rumors flourish, gripes are common, cleanliness of the department is forgotten, and the "I just don't care" attitude prevails.

The foreman should give the operatives an example of job enthusiasm. This may be accomplished by: (a) a pleasant and enthusiastic voice; (b) a cheerful smile and efficient working attitude; (c) an efficient, easy way of tackling a difficult job without reservations; (d) an informal, cheerful conversation with each of the operatives about something in common.

In developing enthusiasm, it is necessary to learn more about the job and the operatives. It is also necessary to know the functions of the company and why each department is an important and indispensible part of the organization. The good qualities of the employees should be admired and respected. Consider each operative's ability and willingness to cooperate, and try to figure out new ways of achieving teamwork.

To help create enthusiasm on the job, the foreman should encourage each operative by giving helpful advice and by placing him on a job for which he is best suited. Let the operative know why he has been placed on a specific job and tell him why he is a vital part of the department. If the operative is treated properly he will respond as a person and not like a mechanical device or robot.

When an employee has done a good job, he deserves recognition. Praise him in public. A well deserved "pat on the back" goes a long way but flattery should not be practiced.

It is just as necessary to give constructive criticism as it is to give praise. However, criticism should be given in privacy and on an impersonal basis. Don't reprimand or otherwise single out an employee in reports or in public for bad work.

Some foremen try to be the whole department and neglect to give credit where credit is due. Morale suffers when a foreman tells the operatives to do a job and then fails to carry his part of the load. After a job has been successfully completed a foreman may lose the respect of his men by telling the boss, "This is the job I did last week." A foreman should remember that he heads the team and is responsible for both good and bad in the department.

Oftentimes a poor foreman may try to upgrade his value by degrading someone in his department or by suggesting to his superior that if it weren't for him (the foreman), nothing would be accomplished. If a mistake is made by someone, the foreman should see that it is corrected with the least disturbance to operations and personnel.

Being a good foreman requires:

(1) Plenty of know-how.

(2) Plenty of challenging and interesting work.

(3) Knowledge of the company, the department, and the job—knowing why.

(4) Ability to recognize a job well done.

(5) Pride in self, department, company, and country.

An effective way for a foreman to build morale among the operatives is to:

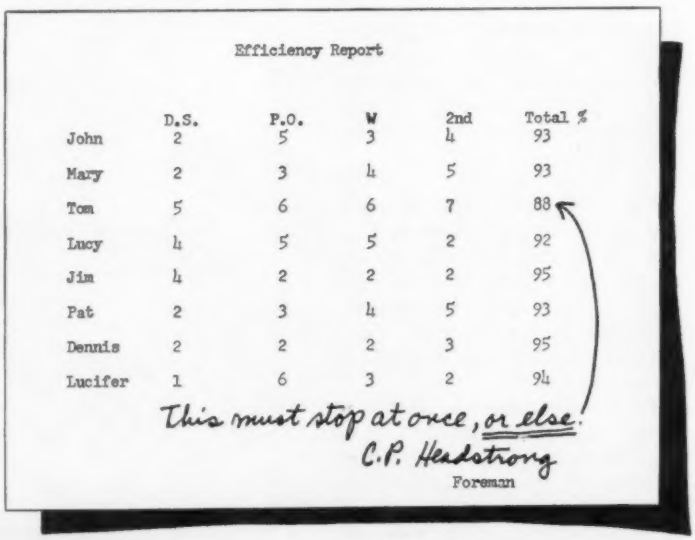
(1) Get enthusiastic about the job himself.

(2) Give each of the operatives something to get enthusiastic about.

(3) Give the department as a whole something to get enthusiastic about.

Constructive Criticism. A good foreman understands that each operative is different from every other, and that each requires different and individual handling. In order to criticize an operator with-

"**DON'T** single out employees for criticism in a public notice."



Efficiency Report

	D.S.	P.O.	W	2nd	Total %
John	2	5	3	4	93
Mary	2	3	4	5	93
Tom	5	6	6	7	88
Lucy	4	5	5	2	92
Jim	4	2	2	2	95
Pat	2	3	4	5	93
Dennis	2	2	2	3	95
Lucifer	1	6	3	2	94

This must stop at once, or else!

C.P. Headstrong

Foreman

out being offensive, the foreman should first determine what elements are to be considered. The operative's performance may be analyzed by asking these questions mentally:

(1) Is it this operative's quality of work which is down?

(2) Does he cooperate with others?

(3) Does he know how?

(4) Does he instigate false rumors, thereby upsetting the morale of the department?

When the foreman has determined which of these is keeping the operative from performing effectively, it is then time to sit down in privacy and have a heart-to-heart talk with him.

Let the employee know that something is wrong with his work and that you are desirous of helping him correct the difficulty. Then ask the operative for his suggestions to solve the problem—let the operative talk. Usually, he prefers to express his bad qualities himself, rather than to have someone else review them. Be sure he realizes that something is wrong and must be corrected. Offer any suggestions you have and establish a plan to follow in correcting the difficulty—then STOP. When the employee has made the necessary adjustments, don't forget to express your appreciation.

The Lady in Business. Assure yourself at the outset that women are not invaders of the company but that they are invited participants in the activities. How well they produce depends largely upon the foreman. The start that she gets determines largely how well she will succeed.

Let the women feel free to ask questions and encourage them to do so. Women are naturally inquisitive, and once they begin to ask questions about the plant or the product, you have an indication that they are working in the right direction. Always take time out to answer their questions although they may appear to be elementary. Don't laugh—remember, you would probably ask some simple questions at a sewing circle.

Getting Better Quality. A foreman should know what quality is, how it is measured, controlled, and produced. He must be a leader capable of instructing his men in the skills required to meet the established standards.

In maintaining quality standards it is necessary to:

(1) Have definite quality standards and responsibilities established.

(2) Set an example.

(3) Develop pride in the company product.

(4) Train each operative to know the various quality requirements for the different types of work encountered.

(5) Study errors that degrade quality and find the remedy.

(6) Never relax the quality standards.

The foreman should insist on quality and spotcheck the work personally. A foreman should never make the mistake of doing poor work himself; if he does, he can hardly expect good work from those under his leadership.

Some of the more common causes of poor quality are:

(1) An operative on a job for which he is not suited.

(2) Operative or whole department hurried or rushed too much.

(3) Operative fails to follow instructions.

(4) Operative disturbed by personal problems.

(5) Goods promised for delivery on an impossible schedule.

(6) Operative not trained properly.

(7) Workload too heavy.

Handling Grievances. Anything that irritates an employee and makes his working conditions unpleasant may be called a grievance. Grievances are real danger signals because they often affect output and quality.

There are many things a foreman may do to cause a grievance. Be sure that you are not responsible for any of the following:

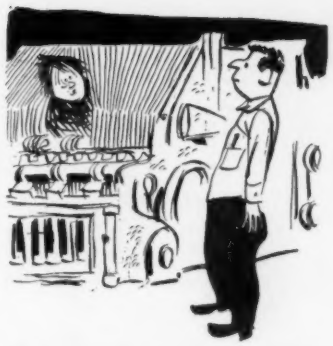
(1) Taking credit for another person's idea.

(2) Threatening an operative.

(3) Criticizing an employee in public.

(4) Showing little or no interest in employees.

(5) Not handling overtime fairly.



"WOMEN are naturally inquisitive."

"GOSSIP AND RUMORS flourish when there is a lack of interest in the work."

(6) Improper job planning.

(7) Giving an order without good reason.

(8) Failing to give praise where praise is due.

(9) Unfairly accusing employees.

(10) Ignoring complaints.

(11) Breaking promises.

(12) Discouraging suggestions.

(13) Putting someone on a job for which he is not suited.

(14) Having favorites.

(15) Assigning too much or insufficient work.

Always encourage employees to bring grievances to the forefront. Get the facts as quickly as possible to prevent a minor problem from becoming a major problem. Don't jump to conclusions, and don't argue.

After you have handled a grievance, determine whether the problem has been solved by observing the employee's morale. If discontent remains evident, you still have work to do.

This Study of Picking and Carding Revealed Causes of Yarn

BY JAMES M. HEAVNER

EXCLUSIVE

This article illustrates the unevennesses caused by the picker laps being off-weight.

The charts and graphs relating to Phase 1 reflect the conditions brought on by laps having excessive weight variation from yard-to-yard and from lap-to-lap. Those of Phase 2 reflect the improvements effected by bringing the laps back within the allowable weight limits.

Each bar chart in this article combines the results of both Phases, except for the chart for Phase 2, Test G. In all cases the results in Phase 1 are shown by the cross-hatched or vertical bars, and the results in Phase 2 by the horizontally ruled bars.

THE OBJECTIVE of this study was to determine the causes of size variations of stock in process. The tests and resultant illustrations serve to underline the importance of maintaining uniform base weights.

It is generally believed that many doublings in a yarn plant will take care of any variation in yarn sizes. This axiom gives rise to the question: "Why are the 49,152 doublings in this plant so ineffective?" Upon discussing the problem, we found an answer but hardly a complete one. Only after we drew a diagramatic sketch of the machinery layout, visualized the material in flow, and calculated the stock in process, did we clarify all of the ramifications of doubling.

The formula:

$$\text{New Variation} = \frac{\text{Old Variation}}{\sqrt{\text{Doublings}}}$$

is a rule which sets only the optimum ceiling which we can obtain with the best chance distribution. What we actually get depends on the quantity of stock in process, the package size, and cycle occurrence. We have to give the doublings an opportunity to cross over heavy and light places, machine cycles, shift cycles, mix cycles, and any other cycles that might occur.

The number of doublings, as well as knowledge of cycle disturbances, is important in solving the size variation problem. Plant layout is an important factor in determining and controlling cycle disturbances. It is relatively unimportant whether all production data, package sizes, doffing cycles, and other data are 100% accurate. We should consider cyclical disturbances in planning a new plant layout or in rearranging the existing material flow.

Results and Conclusions. We have approximately 9,726.5 pounds of stock in process in the card room, which represents approximately the production of two shifts. This relatively large quantity, in itself, should not imperil evenness to a great extent. That is, *if the machinery layout did not lead to channeling of stock to certain machines, and if these machines did not break up the 9,726.5 pounds into small doffing batches of 612 pounds.*

A full lap creel on the breaker drawing contains less than 450 pounds of stock—36 deliveries x 12.5 lb (full lap weight).

Any slight batch deviation caused by base weight change at pickers, lap laying, stripping, mix changes, waste, moisture changes, and human factors, will immediately influence the variation and the end product. This condition makes the plant extremely vulnerable to long term variation, and supervision, through strict controls, has to take all necessary precautions to reduce these deterring influences. We build up stock reserves as far as possible, split lap laying and stripping cycles, and have at least one full card doff in reserve.

How much better off is our competitor who has large 14″ or 15″ card cans which contain approximately 20 lb of card sliver? When he creels these cans, 8 x 8, into a can-back breaker drawing delivery, he has 20 x 8 = 160 lb in the creel of every delivery. Assuming an actual drawing production of 16 pounds per hour (20 lb @ 80% efficiency), one creel of 160 pounds will run 160÷16=10 hours.

In comparison, our drawing creel of 12.5-pound laps last only 12.5÷16=0.78 hours, or 47 minutes.

The competitor's breaker drawing delivery, which was creeled at 8:00 A.M., will have to be creeled at 6:00 P.M. His huge stock, stored in the drawing creel, breaks up any cycle wave which lasts not longer than 10 hours.

It is an effective safety device, as it automatically breaks up and randomizes all card cans. Our competitor has a second finisher drawing process with a similar stock accumulation, which really randomizes the stock and cuts across mix changes and long term cycles.

Although we are now using two-process drawing instead of one, we do not expect a second finisher drawing process to cure all variation ills. Strict picker lap control has to be maintained, and a stock reserve has to be built up. It is not simply a matter of doubling to bring relief; *what we double determines the results.*

Confirmation of Conclusions. About a year ago, a comprehensive comparison of combed yarn was made to determine our quality status. With regard to short term variation, our yarns ranked well above the average, but long term variation was not up to par.

Supervision was shown a comparison between our yarn and that of one of our major competitors. It was quite obvious that something had to be done to improve size variation of our yarns.

This study summarizes approximately one year's work devoted to solving the problem: "Why do not 49,152 doublings give more satis-

Size Variation

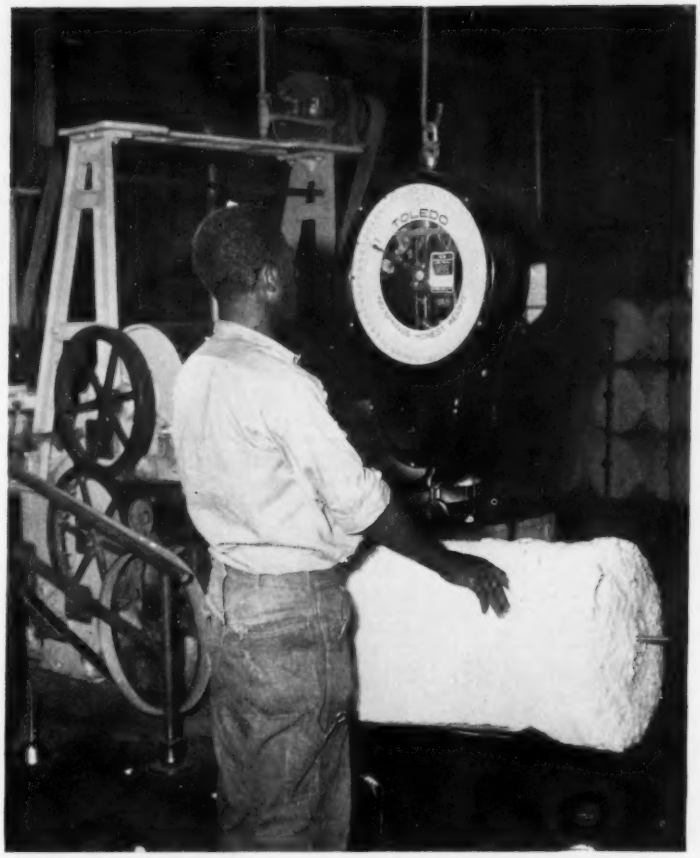
factory results?" To find the causes of excess yarn size variation, we had to determine the influence of different types of variation on the end product. After a comprehensive study of the individual variation patterns, we still had no definite clue as to why the large number of doublings were so ineffective.

We found three basic causes of excessive yarn variation. They are:

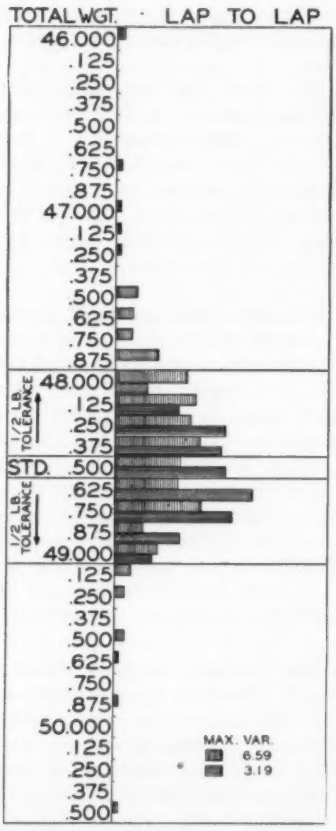
1. Excessive variation up to card sliver.

2. Small quantity of stock in process in the card room leading to small-batch production.

3. Insufficient doubling effect from card sliver to yarn.



THE PICKER TENDER and his lap scales are perhaps so much a part of the scene that their importance is easily overlooked. A variation produced here cannot be fully corrected in the processes to follow. By the same token, uniformity introduced here is not easily lost.



TEST A. The above distribution was gained from the weights of 179 laps. The vertically ruled bars represent the conditions found in the initial tests. The horizontally ruled bars represent the distribution of the same number of laps after corrective action was taken.

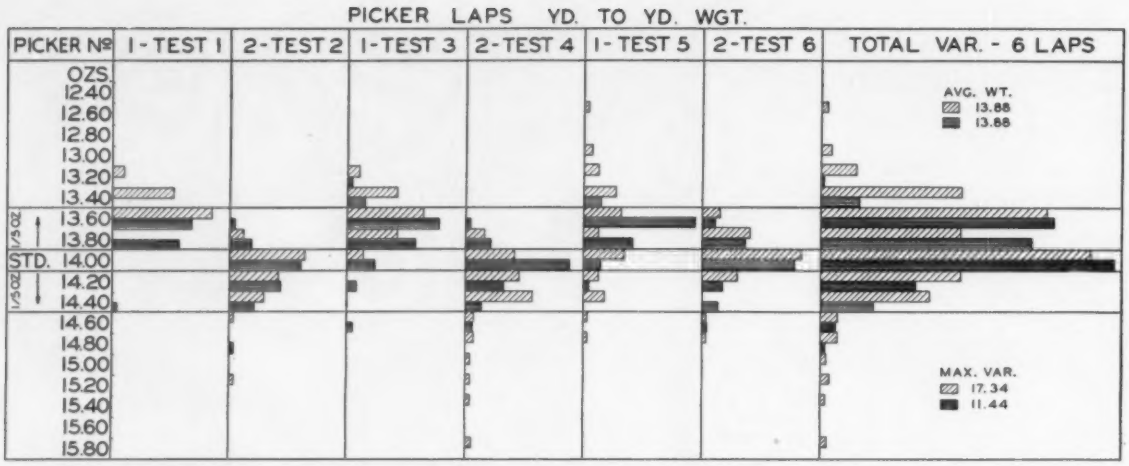
The study was conducted in two phases. Phase 1 represents the variation picture before any corrective measures were taken. Phase 2 represents the variation picture after some corrective measures were taken.

The components of card sliver variation are as follows:

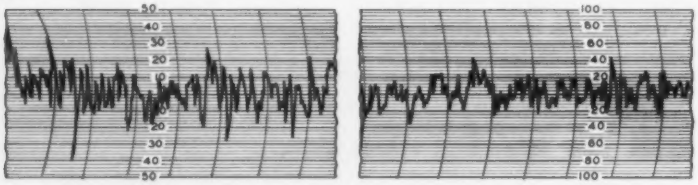
Variation Source	Phase 1 (%)	Phase 2 (%)
Full-lap-by-full-lap	6.59	3.19
Lap yard-by-yard	17.34	11.44
Lap inch-by-inch	28.00	20.00
Between Cards	3.20	8.00
Card Sliver	32.84	24.66

Full-Lap-By-Full-Lap Variation. Phase 1, Test A. Management wants to make a 48.5-lb picker lap with a tolerance of plus or minus 0.5 lb (including lap pin weight of 3 lb). All laps should stay between 48 and 49 lb with pin, or net 45 to 46 lb. To determine how close this tolerance was kept, the laboratory technician rechecked at random approximately 175 to 180 laps from different shifts and at different intervals. Actual lap weights ranged from 46 lb to 50.5 lb. Of the total laps weighed, 26 laps, or 15%, were too light; 10 laps, or 5.75%, were too heavy; 138 laps, or 79.25%, of the laps were in tolerance. Only 17 laps, or 9.75%, had the exact standard weight of 48.5 lb. If we compute the maximum variation range (using as a basis 6 x CV) of all laps, we obtain 6.59% maximum variation in full lap by full lap.

Yard-By-Yard Variation. Phase 1, Test B. The standard lap man-



TEST B. Picker No. 1 was producing a consistently light lap; picker No. 2 a consistently heavy one. When the weighings from the two pickers were totaled, the number of laps within the prescribed limits grew. But so did the number of laps outside the limits. The extreme right portion of the above chart shows the cumulative effects of the weighings.



TEST C. Lap Varimeter readings before (left) and after (right) corrective action showed an improvement from 28% to 20% (average) in inch-to-inch variation.

agement wants to make weighs 14.00 ounces per yard. Three yard-by-yard lap tests were made from each of two pickers.

Picker No. 1 was running lighter (averaging 13.63 ounces per yard) than Picker No. 2 which averaged 14.14 ounces per yard. This shift in base weight has the same effect on overall yard-by-yard variation as a very poor picker lap. For example:

The yard-by-yard variation of Test No. 1 on Picker No. 1 is excellent, but the average weight is 13.53 ounces instead of 14.00 ounces per yard. This increases the overall variation of the six picker laps considerably. Upon computing the maximum variation range (6 x CV) of the six picker laps, we obtain 17.34% maximum yard-by-yard variation.

Inch-By-Inch Variation. Phase 1. Test C. Six picker laps were tested on the Uster Lap Varimeter and showed the following results (inch-by-inch):

Lap No.	Variation (%)	Lap No.	Variation (%)
1	26	4	29
2	30	5	28
3	25	6	30

Average: 28

We should keep in mind the four factors comprising overall card sliver variation.

Phase 1. Test D. The illustration for this Phase shows how the picker lap variation builds up to 32.84% card sliver variation. The percentage of variation is represented in square area similar to the technique used by M. Earl Heard of the West Point Manufacturing Co. [TEXTILE INDUSTRIES, March 1953, p. 97].

The 6.58% full-lap-by-full-lap variation apparently plays an unimportant part on the overall card sliver variation. However, yard-by yard-variation of all pickers cannot be controlled without controlling the long term shifting of base weight. The same is true of the influence of the yard-by-yard variation on the inch-by-inch variation.

All three are interdependent and have to be controlled before we can expect any relief in the overall card sliver variation. Our experience shows that the influence of long term shifts of the base weight are the most deterring influence in this plant.

Variation Between Cards. Phase 1. Test E. The frequency distribution represents the weights of 800 one-yard lengths of card sliver. We used these to compute the card sliver variation (using 6 x CV) to confirm the card sliver variation represented in the sketch showing square area. The variation computed is 32.55% as compared to 32.84% on the sketch. These results show that the sketch can be used for many practical purposes.

Size Variation In Yarn. Phase 1. Test F. The yarn count to be made was 28s CP knitting yarn, which was spun from the production containing the size variation we have just covered. The size variation ranged from 25s on the heavy side, to 31s on the light side of 28s, with an average yarn count of 27.64. Computing the maximum variation range (using 6 x CV), we obtain 26.65% maximum variation in the yarn size.

Full-Lap-By-Full-Lap Variation. Phase 2. Test A. Phase 2 shows the improvement effected. To find how closely the lap tolerance was kept, the laboratory technician rechecked approximately 175 to 180 full laps from different shifts and at different intervals, at random. Actual lap weights ranged from 48 lb to 49 lb, or 45 to 46 lb not counting lap pin weight.

Of this total no laps exceeded the tolerance of 0.5 lb (plus or minus). Although the total laps are within the tolerance, management is not yet satisfied. Only 26 laps of the total, or 14.44%, were of the exact standard weight of 48.5 lb.

If we compute the maximum range variation (6 x CV) of all laps, we obtain 3.19% maximum variation in full lap by full lap. This shows some improvement over Phase 1, Test A.

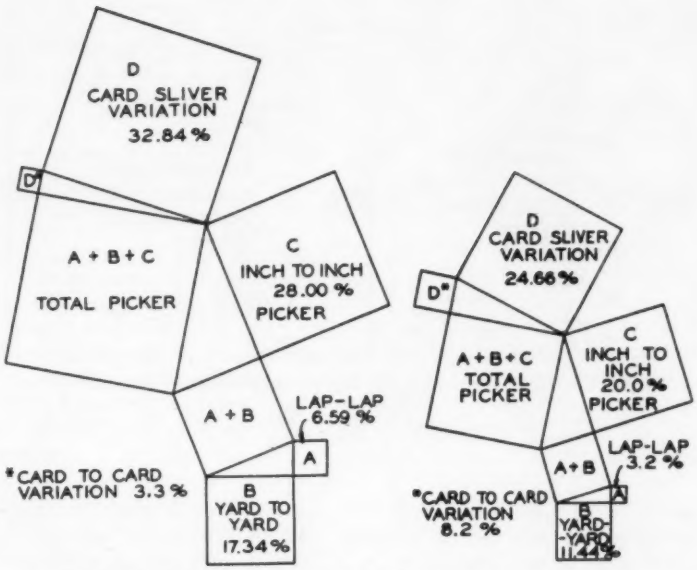
The question is asked, "What did you do to get this improvement?" A major improvement was effected after *line supervision adopted a more positive policy to keep all laps within the established tolerances.*

This policy is strictly adhered to. That is, the person weighing picker laps must read the scales accurately and reject laps out of tolerance. Overall lap weights are now checked three times (including spot checks); formerly the initial weighing was relied on.

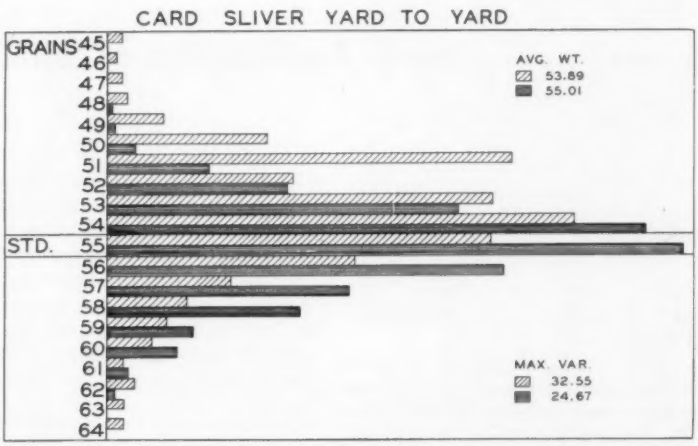
Yard-By-Yard Variation. Phase 2, Test B. The standard lap to be made weighs 14.00 ounces per yard. Three yard-by-yard lap tests were made from each picker. The test results are shown compared to Phase 1.

An improvement is evident in the overall variation. Phase 2 shows a maximum variation of 11.44% compared to 17.34% maximum variation in Phase 1. However, Picker No. 1 is running lighter: an average of 13.71 ounces per yard compared to Picker No. 2, which shows an average of 14.05 ounces per yard.

This shift in base weight has a big effect on the overall yard-by-yard variation. The computed maximum variation in this test is 11.44%, as compared to 17.34% in Phase 1, Test B.



TEST D. The above structures are built on the premise that the cumulative effects of variation can be portrayed graphically through the use of the Pythagorean Principle. Thus a convenient unit of length is adopted to represent the yard-to-yard lap variation (17.34) and a square is formed of the chosen length. This length also forms one side of a right triangle. The same unit of length is used with the lap-to-lap variation (6.59) to form the second side of the right triangle. The sum of the squares on these two sides is equal to the sum of the square upon the hypotenuse. The hypotenuse forms the side of a square which reflects the cumulative variations of squares A and B. The structure to the left shows the cumulative effects before correction; right, after corrective action.



TEST E. Card sliver variation before and after lap weight correction.

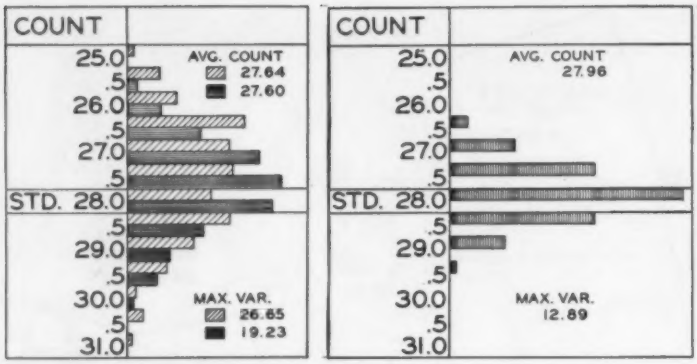
Since no changes were made on the pickers, the better control of the full-lap-by-full-lap weight is responsible for this decrease in size variation.

Inch-By-Inch Variation. Phase 2, Test C. Six laps were tested on the Uster Lap Varimeter and showed the following results (inch-by-inch):

Lap No.	Variation (%)	Lap No.	Variation (%)
1	18	4	19
2	20	5	25
3	18	6	20

Average: 20

The only explanation for this



TESTS F AND G. Correcting the lap weights brought maximum yarn variation (left) from 26.65% to 19.23%. The further reduction in maximum variation to 12.89% in the chart at right was gained by using a second process of finisher drawing.

decrease or improvement is the better picker lap, since no changes were made at the pickers.

Phase 2, Test D. This illustration is comparable to Phase 1, Test D, and shows how the picker lap variation builds up to the card sliver variation. The percentage of variation is shown in square area. The square area is less than the square area in Phase 1, showing the improvements effected. The card sliver variation in Phase 2 is 24.66% maximum variation range as compared to 32.84% maximum variation in Phase 1.

Variation Between Cards. Phase 2, Test E, represents the same type frequency distribution as in Phase 1. 800 one-yard lengths of card sliver were used from Phase 2 production to confirm the card sliver variation shown in the sketch of square area. This variation computed (on basis of 6 x CV) is 24.67%, as compared to 24.66% in the sketch.

Size Variation in Yarn. Phase 2, Test F, illustrates the size variation in yarn. The yarn count to be made was 28s CP knitting yarn which was spun from the production containing the size variation covered in Phase 2 (after some improvements were made). We have a size variation range now from 25.5s count on the plus side, to 30s count on the minus side of the standard count of 28s, the average count being 27.6s. If we compute the maximum variation range (using 6 x CV) of all sizes, we obtain 19.23% maximum variation in this yarn size as compared to 26.65% maximum variation of Phase 1 tests. This shows considerable improvement. Adding a second process finisher drawing reduced overall size variation in yarn to 12.89%.

Low-Temperature Application of Silicones to Wool

BY F. L. DENNETT
Dow Corning Corp.

ABSTRACT*

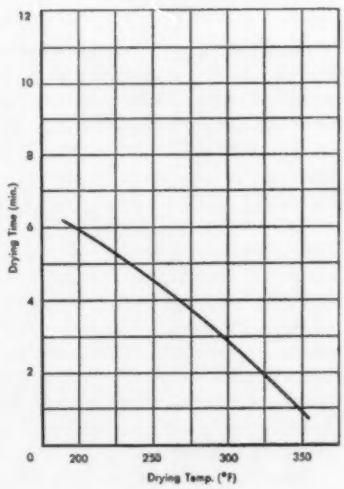
WOOLENS and worsteds have long been regarded as perfect fabrics needing no chemical finishes to enhance their utility and esthetic value.

With the development of lower curing silicone emulsions we find considerable interest in this field. The natural repellency of the wool fibers is enhanced, the hand is softer and fuller, wear resistance improved, and resistance to waterborne spots is increased.

Until recently, to obtain these properties, wool was padded with a silicone emulsion and the fabric was then dried and cured at 220-250 F for 8-12 minutes. Even at these temperatures it was difficult to realize the maximum values of silicones, and the curing time was too long, especially on heavy weight fabrics, to be economical.

We have recently introduced a silicone emulsion designed to be applied to woolens and worsteds by the exhausting method. Water repellency, spot resistance, and a desirable hand can now be obtained with this new emulsion system, without the necessity of a special high temperature curing operation. It is also applicable in mills where no padding equipment is available.

This silicone product is a two-package, water dilutable emulsion, designed to exhaust onto woolens and worsteds having less than 15 per cent man-made or other fiber. It performs equally well on new or reprocessed wool. This emulsion is low in viscosity and is easily di-



DRYING TIMES at different temperatures required to produce a spray rating of 100 on a typical 14-ounce flannel.

*From a paper presented at the Fifth Canadian Textile Seminar, Kingston, Ontario.

luted with cold water.

For optimum results the fabric to be treated should have a pH of 5-7 and be free of wetting agents, softeners, soaps, and detergents. The fluids may be applied to wet fabric in a conventional dye beck or dolly washer. Good levelness of application is assured if the equipment is operated at maximum speeds.

The bath is prepared by first adding sufficient water at 60 F to 90 F to the beck or dolly washer to make a 30-1 ratio by weight of water to fabric. The catalyst is then mixed with sufficient emulsion to deposit 1 per cent solids based on dry fabric weight, in a ratio of 1 part catalyst to 10 parts of emulsion. This mixture is then added directly to the washer with the fabric in motion. No additional heat is necessary. At the end of a 30-minute operating period a liquor sample should be at least 90 per cent clear.

Although the bath may indicate exhaustion after the first ten minutes of agitation, the operation should be continued for an additional twenty minutes to insure optimum levelness.

At the end of the 30-minute operating period, the bath is dropped. Without rinsing, the fabric is then given normal drying and finishing operations.

It is only necessary to dry the treated fabric to develop maximum properties of water repellency. High temperature curing is not necessary.

The accompanying illustration shows the drying times at different temperatures required to produce a spray rating of 100 on a typical 14-ounce wool flannel.

The advantages of an exhausting system for applying a durable silicone emulsion to wool are many. A few are listed below:

(1) Fabric may be treated wet in the same equipment used for dyeing.

(2) Accurate control of percentage add-on is possible.

(3) Drying step between dyeing and treating operation is eliminated.

(4) No high curing temperature is required to develop maximum properties of the silicone.

Additional work is being carried on to determine the feasibility of applying mothproofing along with the silicone to provide double protection for the fabric—protection against moth damage, with lasting protection against damage from water-borne soils and stains.

How to Make a Hit at Home and . . . .

Do Your Part to Increase Textile Consumption

ATTRACTIVE hats like the one pictured here can be fashioned by the ladies out of scrap fabrics and trimmings shaped over ordinary household equipment and stiffened with Sta-Flo liquid starch, a product of A. E. Staley Mfg. Co.

Cotton eyelet was used to make this summer bonnet. Shaping was done with a salad bowl and skillet as shown in the series of photos below. A black velvet ribbon was tacked on for trim, the only sewing necessary.

According to the announcement, a "Sta-Chapeau" is so inexpensive that the little woman can have one to go with every costume and a new one for every special occasion.

Study the photos below for step-by-step procedure for making these hats. Then show the lady of the house how it is done.

You'll be "King for a Day."

HOW IT'S DONE. A hat with a turned down brim is made with a salad bowl set slightly off center on an inverted skillet (left photo). Pipe cleaners soaked in liquid starch placed over the salad bowl and pressed onto the fabric help hold the shape. An 18" circle of burlap is used for this hat, soaked in liquid starch. **Center:** After fabric is shaped, lift off the form to dry. The band around the hat helps hold the shape as well as trimming it. **Right:** Additional shaping is done on the head and more starch applied with a brush. Silver foil protects the hair.

"How We Dye Stretch Yarn Fabrics"

BY JOSEPH L. WAUTERS
Superintendent of Dyeing
Garnet Hosiery Finishing Co., Inc.

EXCLUSIVE

"HELANCA" stretchable nylon yarn has become very popular over the past few years, not only in the stretch sock field but in undergarments as well. In the principal undergarment use, stretch panties, one advantage lies in the convenience of knitting several sizes in one, such as teenage and regular. These garments are generally dyed in the panty form to current needs in various colors.

"Helanca" is a registered trademark used to designate yarn manufactured under a licensing agreement with the Heberlein Patent Corporation and the yarn is produced according to their specifications. The method for production of the yarn in 70 denier is described as follows: "The filament yarn is given 75 turns per inch and heat set. It is then untwisted to zero or a very low twist and plied with an end which is also high twisted and untwisted but in the opposite direction. The plied yarn is given a slight twist to hold the ends together."

Fabric Manufacture and Preparation. A considerable amount of development went into today's stretch panty garment to achieve a nonwrinkled appearance, proper fit, and maximum elasticity.*

In knitting, appearance and fit factors are controlled through use of high, constant tension. The knitted loop should be about double the size of that adjustment in conventional knitting. The size of the loop controls the firmness of the fabric: Small loops yield a firm fabric with little stretch; large loops, a soft fabric with more stretch.

Following knitting, relaxing the fabric is desirable and necessary if it is to be preboarded. This allows the garment to fit the special cut forms used in preboarding and contributes to proper shrinkage in that operation to arrive at a full, smooth fabric with good stretch.

The dyer must consider the controls exercised in these operations performed before he receives goods, since improperly handled stretch panties, at knitting and preboarding, will cause certain types of dyeing defects.

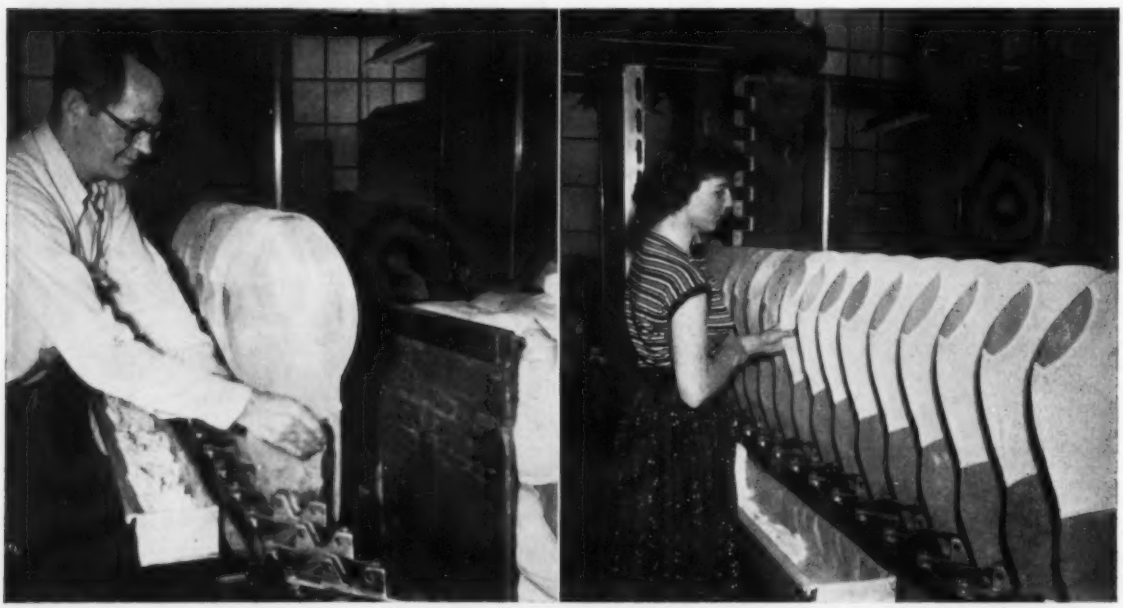
Scouring. In processing stretch panties, the most important factor is the ability to emulsify and keep dirt, lubricants, crayon markings, and foreign matter in suspension. Preboarding will tend to imbed extraneous matter into the yarn and render it difficult to remove.

When rubber webbing is present in the stretch panties, however, a limitation is placed on the scouring method used because rubber is sensitive to upper limits of alkalinity. Thus pH can play an important part in selection of the scouring operation.

For proper scouring, numerous products can be suggested. Generally a highly concentrated, syn-

*For a complete discussion of the processes which precede dyeing, see TEXTILE INDUSTRIES for October, 1954, pp. 134-137.

PREBOARDING, prior to dyeing, requires fitting relaxed stretch panties to special forms. Tensions (high) and loop size (large) in knitting, and shrinkage in preboarding are key controls required to do a good job in dyeing. Photo at left shows forms being fitted to preboarding machine; at right, loading forms.



thetic, nonionic surfactant such as an iso-octyl phenyl ether of polyethylene glycol is preferred. If desired, surfactants may be buffered with alkaline builders such as soda ash, trisodium phosphate, sodium hydroxide, etc. The nonionic detergent not only removes solid and oily soil from the grey garments but also keeps soils in suspension so that they do not redeposit on the garment during scouring. The object of scouring is to produce a thoroughly clean garment with the uniform cleanliness required in subsequent dyeing operations. In terms of the scouring agent, desirable properties include wettability, dispersibility, rinsability, and detergency. Triton X-100 or similar materials have proven effective to this end.

From the standpoint of concentration required vs. cost per pound also, the detergent type noted is economical and is efficient for all pastel and medium depth shades such as pinks, orchids, baby blues, limes, yellows, etc.

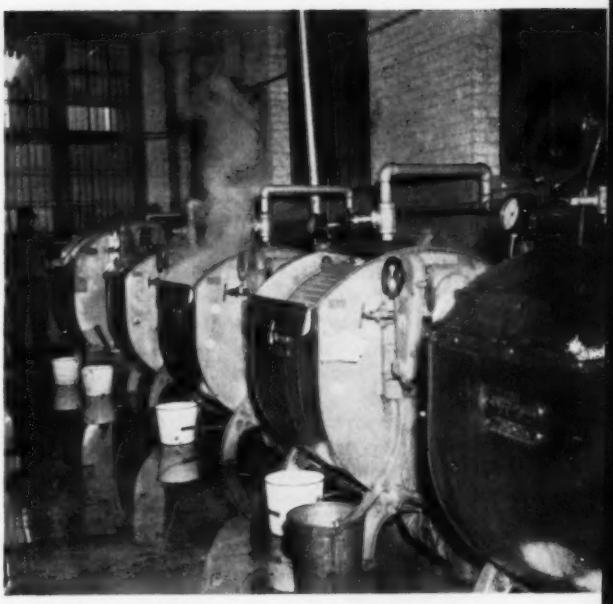
Scouring Procedure. Since conditions vary from mill to mill, no single over-all formula can be recommended. The best formula should be determined by trial. Time and temperature variables are best controlled as follows:

1. Start scour in a neutral or slightly buffered bath at 90 F.
2. Raise temperature to 180 F and run 30 minutes.
3. Give hot rinse and prepare dyebath.

Dyeing. Fabrics of "Helanca" stretch yarns can be dyed with all classes of dyes. For all practical purposes, however, colors are best selected from disperse and acid dye classes.

Disperse dyes are especially suited to the dyeing of pastel shades on stretch panties, and they are applied by the same method used in the dyeing of nylon hosiery. They produce level, well penetrated dyeings which give fair fastness to light and washing. The disperse dyes level and migrate very well on nylon and cut down the occurrence of streaks due to variation of yarn thickness or different merge. They exhaust slowly when applied at temperatures below 120-140 F, and near temperatures of 180-190 F maximum exhaustion and migration take place.

Acid dyes have good fastness to wet processing and are superior to the disperse dyes in this respect. They do, however, have a tendency to show up imperfections due to mixed yarn merges, knitting, variable yarn size, and tensions in the garment. By careful selection of acid dyes, with proper preboarding, and with high temperature dyeing, it is possible to minimize the effect of these yarn irregularities. This class of dyes requires acid for exhaustion. The dyeing rate is controlled by gradually raising the temperature of the dyebath and by controlling pH.



SCOURING, DYEING, rinsing and finishing are component, intermittent operations performed on these rotary machines. Scouring is a critical step; acid and disperse dyes are used in coloring the panties. Form drying follows finishing.

All fibers have a maximum color absorption and fixation at some definite pH. Furthermore, correct temperature in dyeing is important for successful work. Needless to say, it is important to train dye machine operators to carry out the temperature and time controls which they govern. Overloading of machines is asking for trouble. Underloading is sometimes unavoidable in plants which do commercial commission dyeing.

Dyeing Procedure — Pastel Shades. The well dispersed dyestuff is added to the previously scoured panties in a fresh dye-bath at 90 F. The bath is raised slowly to 180-190 F, run for 30 minutes, and then sampled. If the shade is OK, the lot is rinsed and finished.

Dyeing Procedure—Deep Shades. Dyeing deep shades must take place in a bath which changes slowly, under heat, from slightly alkaline to slightly acid. The importance of the slightly acid dyebath towards the end of the dyeing is considerable.

Addition of acid at certain temperatures is liable to cause the dyestuff to rush on the fabric. It is far better to add ammonium salts at the start-up. The ammonium salt splits up in the dye bath to some extent, with the ammonia passing off gradually with the accompanying production of acetic acid. As the ammonia is released the acetic acid allows the color to exhaust on the nylon, resulting in a clean, well dyed shade.

The dyebath is prepared at 100 F with addition of 1 to 5 per cent of ammonium salt, ½ per cent of a nonionic detergent, and well boiled-up dyestuff. The temperature is raised to 200-212 F over a period of 30 minutes, run an additional 45 minutes, and then sampled. If additions of acid are called for, dilute well and add over several portions, 20 minutes after coming up to temperature. If sampled shade is correct, rinse clear, soap off, rinse, and apply finish in a fresh bath.

Bleaching. Nylon is quite white as manufactured, and usually a good scour with soap and a phosphate is sufficient. Sodium chlorite is not recommended where elastic webbing is employed. Additional whitening can be obtained by tint-

ing with a small amount of one of the various fluorescent whitening agents on the market.

Softening. Dyed or bleached stretch panties frequently require softening to improve their handle and thus aid in merchandising. The cation-active softening agents will, in most cases, produce an effect superior to that afforded by "older" types of softeners. The cation-active type of softener must be resistant to oxidation, discoloration, and odor development on exposure to light, air, and heat under normal processing. The hand it should produce is one of silkiness with a pleasant velvet surface touch. Cation-active softeners are very soluble and stable under neutral, mildly alkaline, or acid conditions. Concentration required is 0.5 per cent to 2.0 per cent on the weight of the goods.

FINISHED ARTICLE is shown, along with a type of packaging in this merchandising display.

New Equations for Predicting Cotton Performance

RECENT efforts of Robert W. Webb, USDA cotton technologist, have resulted in several new equations for predicting strength and appearance of carded yarns, nep count per 100 sq in of web, and total picker and card waste. These equations are adapted to the general run of American upland cottons in current commercial production.

Data for the study* included a total of 328 commercial cottons, grown in 111 selected improvement areas across the U.S. Cotton Belt from the crop year of 1954. A total of 678 lots of singles yarns ranging from 8s to 50s was used in the analyses. All yarns tested were of warp type and contained semi-hard twist.

The principal varieties of cotton grown in current commercial production were included in the study. All cottons were grown, harvested, and ginned under commercial standards identified with their respective growth areas. Except in a few instances, three lots of cotton representing early, midseason, and late season were obtained from each growth locality.

The three principal fiber properties contributing to yarn strength, listed in descending order of importance, are fiber strength at ⅛" gauge or upper half mean length, and fiber fineness (wt/in.).

The two most important factors influencing yarn appearance are yarn size and fiber fineness. Grade index is by far the most important factor affecting percentage of picker and card waste. Causticaire fiber maturity ranks first in importance to nep count of card web.

Yarn Strength Equation. In all, six equations for predicting yarn strength were developed. A sample equation reads (constants in the equation were derived statistically and are taken from tables in the report):

$$S = 10.28 - 19.48A + 18.25B + 1392.25C - 80.56D$$

S=Predicted yarn strength, in cps units
A=Yarn count
B=Fiber strength (Pressley), 1/8" gauge
C=Upper half mean length, inches
D=Fiber weight per inch (Micronaire), micrograms.

Substitutions are made in the equation for the cotton in question, as follows (data from table in the report):

A=22s and 50s
B=108
C=1.12
D=4.6

Factors in equation	Strength Calculations 22s	50s
Constant	+ 10.28	+ 10.28
− 19.48 × 22	− 428.56	
− 19.48 × 50		− 974.00
+ 18.25 × 108	+1971.00	+1971.00
+ 1392.25 × 1.12	+1559.32	+1559.32
− 80.56 × 4.6	− 370.58	− 370.58
Total	2741.46	2196.02
$\frac{2741.46}{22}$ =	124.61	
$\frac{2196.02}{50}$ =		43.92
Actual yarn strength in lb	128.00	46.00
Difference (in pounds)	− 3.39	− 2.08
Difference (in per cent)	− 2.64	− 4.52

Some Details Not Important. Some of the factors of raw cotton quality included in the equations influenced count-strength product to a relatively small amount. Omission of all unimportant factors or fiber measures from the equations obviously reduces the number of fiber tests involved and the amount of both technical and clerical work required.

Use of equations representing such eliminations permits a saving in terms of fiber-laboratory manpower and clerical personnel. In the light of the above, three equations for predicting yarn strength are recommended.

Ten equations were developed for predicting directly the appearance of any size of carded yarn (warp), from 8s to 60s, on the basis of varying numbers and combinations of factors in raw-cotton quality.

Among those qualities are the alternative Causticaire and Micronaire measures of fiber fineness. Three of those equations are recommended.

Six equations for predicting the number of neps per 100 sq in. of card web were developed. Of those, three are recommended.

Five equations were developed for predicting the amount of waste

*Full report in USDA Agricultural Marketing Service Market Research Report No. 114.

in picking and carding. Three of those are recommended.

Personal Equation is Variable. Evaluation of yarn appearance is not as precise, significant, and representative as is determination of yarn strength. The best yarn appearance evaluations now possible still are influenced more by the personal equation than are the standardized tests for strength.

One of the weakest, if not the weakest, link in the studies conducted on the nep problem is the fact that the evaluation of neps per unit of area, volume, or weight in card web or raw cotton is so variable.

Even by use of the most standardized procedures that have been developed to date, different technicians in the same laboratory or mill frequently obtain variable nep counts for a given sample, and sometimes the same technician obtains diverse nep counts at different times for the same sample.

There are many borderline cases in making nep counts; that is, what is and is not a nep, or what should or should not be counted as a nep. All of these affect appreciably the final evaluation of nep content. In addition, the sampling problem is complex and difficult, as the nep count varies so much throughout a sizable sample of raw cotton and card web.

In Topsy-Turvy Land

BY RINGGOLD ARDEN

EXCLUSIVE

A FEW WEEKS ago the 1956 Farm Bill became law. An earlier version had been vetoed by the President, and the one which was approved seemed to be what all hands thought was about the best they could do. Perhaps the most interesting thing about this is the fact that everybody seemed agreed that there *had* to be an annual handout to the farmers in some form or other. The farmer now seems to be installed firmly as a ward of the Government, and the only question at issue from year to year is how big a handout the farmers get, and what form it will take.

The same Government which seems agreed upon the necessity for subsidizing the farmer seems to be agreed that the textile industry not only needs no help, but that its position can be improved by a good swift kick administered in the form of lower tariff rates.

The same Government which looks with concern upon the farmer's problem, which is the increasing cost of everything he must buy coupled with an inability to jack up the price of what he sells, will woo the labor vote by helping it to make the farmer's problem worse. The farm problem is then alleviated by taxing the laboring people to give back to the farmer some of what they took away from him.

The farmer and the textile industry are, in a certain sense, in the same boat, in that they deal with commodities the prices of which are fairly well regulated by international forces. The United States Government seems to have pretty well agreed that it can not do anything about the inflation that it continues to encourage, except to subsidize little segments of the economy which are seriously injured by this inflation.

If it is logical to subsidize farmers because our national government has willfully and deliberately tampered with the laws of supply and demand which normally regulate prices, then this same government is going to be forced inexorably into subsidizing the textile industry or seeing it ruined. A recent government report stated that after careful study the conclusion had been reached that the recent lowering of tariff rates was not hurting the textile industry. Perhaps shutting down mills or curtailing their operations does not hurt an industry from a politician's standpoint, but it would be difficult to convince the people who own the mills and those who work in them that increased competition which can not possibly be met is not harmful.

As this is being written*, the Congress is still wrangling over the Foreign Aid Bill. This foreign aid proposition is coming to be recognized as a perpetual responsibility of the United States, just as subsidizing the farmer seems to be a perpetual responsibility of the non-farming segment of the population. There seems to be no argument about whether we are going to have a Foreign Aid Bill to hand out numerous billions of dollars; the only argument is about how much we will give away and to whom we will give it.

The same Government which insists that we must help various foreign countries as a necessary part of our national defense insists that we must help them on a give-away basis. It is unthinkable that we should try to increase our trade with those countries on a normal give-and-take basis. The way we have been trading with countries receiving these beneficial grants is on the lunatic basis of give all and get nothing. Normal reciprocal trade becomes increasingly more difficult every year, as the same Government which recognizes the need for such trade continues to foster the built-in domestic inflation which makes such trade impossible.

There is just now going on in Washington a violent argument over appropriations of money for national defense. The same Congress that has to appropriate the money seems to lose all interest in what we get for it after the money has been wrung out of the taxpayer. The Air Force is clamoring for more planes, and the same Congress which appropriates the money for the planes is not willing to appropriate money for people to service and fly them. A recent article in a nationally circulated

*June 22, 1956.

magazine claimed that Air Force statistics showed that about one-third of our planes in practically all categories were generally inoperative because of lack of trained personnel.

The same Congress that will appropriate a tremendous sum of money for training technical personnel is unwilling to appropriate money to keep the personnel.

The same Congress which appropriates billions for the Atomic Energy Program approves a pay scale for scientists to operate that program which is about in keeping with what a common laborer can make under the protection of powerful labor rackets enjoying the favor of this same Congress. A recent newspaper article dealt with the great difficulty of keeping competent scientists and technicians in the government employ when private employers, working on government contracts involving money otherwise appropriated by Congress, can pay from two or three, up to ten times what this same Congress allows the Atomic Energy Commission to pay.

The same Government that issues bonds and urges people to buy them as a high-grade security and an excellent means of providing for one's old age, will then pass laws resulting in reducing the value of the bonds to such an extent that when old age is reached the thrifty saver wishes he had spent his money instead of saving it. The people who trustingly bought government bonds during the war are now finding when they cash their bonds that their money is worth about half as much as it was when they saved it.

Of all the hundreds of businesses that the United States Government has established, only one rests on solid Constitutional grounds—the Post Office. Probably no business on earth has rested on as solid and unshakable a deficit as the Post Office. The postal deficit is now a vested interest of many American businesses, and the same Congress which will so glibly pass a minimum wage law to make other employers raise their wages and thereby increase the tax take of the Federal Government, acts with ponderous deliberation and great niggardliness in taking care of the Post Office workers, and apparently intends to take no action whatever to eliminate the postal deficit.

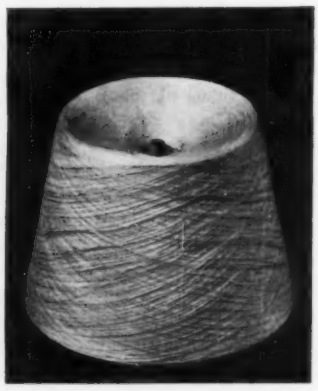
These are but a few samples of the contradictions which can constantly be observed in the conduct of our government. The whole thing often seems to be a slap-happy land of topsy turvy. Much of this chaotic state of affairs is accounted for by the good old Vested Interest. The Vested Interest always sits on the front stoop of Government, and the deeper Government gets into those things with which governments should not meddle, the more potent the Vested Interest becomes.

It is almost axiomatic that government should keep out of business because a business is an enterprise in which the ruling consideration is the production of profit, and that can never be the ruling consideration in anything done by a government. Any government agency which produces a profit is immediately subject to suspicion. Our government has, however, recklessly plunged into an infinite number of business enterprises. Perhaps it had to get into some of these under the pressure of wartime necessity, but there are a great many that it did not have to get into, but entered as a part of the New Deal program for helping the people by expanding their government. Wherever a government gets into business, or at-

Here's What the Correct Angle of Wind Does for a Cone

WHAT the proper angle of wind does for a cone of yarn is clearly shown in the accompanying series of photographs which appeared recently in Foster Machine Company's publication, "Foster Facts."

Wound on a Foster Model 102 machine, the cone of yarn is pulled out of shape by hand in the left photo and then pressed back into shape in the center photo. Note in the right photo that the cone is restored to its original shape. It would not be possible to do this to



tempts to help businesses or any segment of the population by artificial expedients, there you will find the vested interests, greedy and insatiable.

The farmer is a vested interest. Whereas he used to dominate the American economy, he is now relegated to the position of a poor relation, dependent on the bounty of industrial America. Since the same Government which deplores his plight is the one that got him into it by encouraging inflation, this government must seek means of ameliorating the plight of the farmer by some means which will conceal from the persons who are being rooked to help him, the fact that they are being rooked.

The Foreign Aid Plan was a magnificent conception for doing this very thing. The idea of foreign aid was sold to the American people as a part of our defense program, and not as a scheme for getting rid of troublesome farm surpluses or handing out plums to favored American manufacturing interests.

The labor rackets are probably the biggest vested interest of all. Nothing so bedazzles the eye of the normal politician as a bloc of what he believes to be deliverable votes. Of course, the labor racketeer more often than not probably can't deliver the bloc of votes exactly as promised, but he can nearly always stir up enough animosity among his vassals to defeat an objectionable person in an election. Therefore, while he may have little power to elect a favored politician, he has enormous power to punish an unfavored one, and can often have powerful members of the government literally eating out of his hand.

The Federal Government now being the prime dispenser of money, every community becomes a vested interest. Military installations are established, not because they are any good, but because some community needs its handout. V. A. hospitals of lavish dimensions are built with appropriations made by the same Congress that will not put up enough money to hire a suitable staff for the hospital. Such a hospital once in operation becomes an impregnable vested interest upon which some community depends largely for its income.

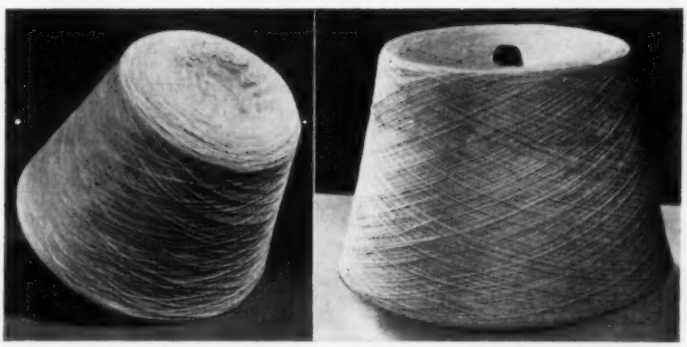
Probably the cornerstone of New Deal economic thinking was the thesis that a strong central government should be responsible for the maintenance of national prosperity, and that controlled inflation, together with enormous government spending, was the tool to carry out this program. The difficulty that the New Dealers encountered was that under the Constitution the government did not have enough things to spend money upon to create the inflation which they envisioned. The war changed all of that and gave the government literally unlimited excuse for spending.

What the New Dealers did not know, and what we have not yet found out, is how long an economy which rests on taxing and squandering, and then borrowing and squandering, can be kept from collapse. Since government spending is the biggest single economic factor in our lives today, nobody knows what will happen if government spending should be drastically reduced. We therefore keep on spending, not because what we spend always gets us something we want, but because some vested interest can kick out of office a legislator who had the courage to say that the vested interest was spending too much money, or perhaps was not entitled to any money at all.

of Yarn

an improperly wound cone, according to the winding machinery manufacturer.

Which Angle for Which Yarn? Nine different angles of wind, from 9° to 18°, are sufficient to cover the entire range of requirements encountered in the textile industry, Foster experience indicates. But don't get the idea that the selection of the correct angle of wind always involves a lot of experimentation or that the angle of wind has to be changed every time the count of the yarn to be wound is changed.



HOW IMPORTANT IS ANGLE OF WIND? If your open wind cone looks like the one at the left and you don't care, then the angle of wind isn't important. On the other hand, if you want your open wind cones to look like the one at the right, if you want them to hold their shape in transit, and if you want them to deliver freely without nips at the knitting machine or in some other subsequent process, then the angle of wind you use on your winding machine is highly important.

For the most commonly used counts, the company said, a 13½° angle of wind is satisfactory, and three other angles will usually cover most requirements. When winding fine counts, such as 60s/1, then the angle of wind should be much smaller—probably 11¼°. On the other hand, when winding coarser yarns, such as 8s/1, then a wider angle should be utilized—probably 15°.

How a Woolen Yarn Mill Meets Customer Specifications

STAFF PREPARED

EXCLUSIVE

THE MILL which operates as a specialist in spinning woolen yarns, as is the case with any sales yarn spinner, is judged by the appearance and performance of an intermediate product — yarn — rather than by the finished fabric. As such it must generally be more careful about making the product than is the average integrated spinning department.

The approach adopted by a newly organized spinning mill, General Spinning Corp., Lowell, Mass., is geared to this requirement. Specifically, it recognizes certain controls necessary to produce a woolen yarn which can "stand on its own feet" and meet the specifications of a customer's order.

Here's how they operate.

Stock

As always, blending stocks for price can be an impediment to making a decent yarn as well as to rate of production. When a cheaper-than-usual stock is called for at General Spinning, enough good stock must be present in the blend to "carry" it. In general, the mill considers that blends need at least 25 to 30 per cent of good length stock of a grade that will spin to the required yarn size; the balance must also be of a grade that would spin at least to the required size. For example, in making a 3-run yarn, the mill will not use a grade lower than 56's, and will not use carpet stocks.

In order to prove out a blend as regards stock, a 100-pound sample lot is usually run through before production is started.

Picking

Condition of Stock. To satisfy requirements for yarn uniformity, two precautions are taken in picking: most blends are picked three times; blends are not overburdened with moisture. The latter step is considered particularly important because of the inability of a scale pan on a card feeder to differentiate between fiber and moisture.

Uneven yarn usually results if an overly moist lot is fed to the card; if no baling system is available, the stock loses moisture on standing, and material fed at the start of such a lot through the card set will contain more moisture and less fiber than will material fed to the set at the end of the same lot.

Applying Emulsion. Blends are laid up at General Spinning in sandwich style, oiling between each successive layer if the blend is all wool, and omitting oiling of layers composed of materials other than wool, such as cotton, Dacron, Orlon, and nylon.

Spinning oils are selected to suit the conditions under which the stock is to be processed. For example, if atmospheric conditions in the plant are generally dry, an oil with good water absorbing properties is used.

Carding

Maintaining Uniform Roping. A mechanical expedient has been adopted by the mill to minimize fluctuations in roping size. Recognizing that maintaining a constant level of stock in the feeder hopper will contribute to roping uniformity, feeders were extended to cut down the probability of feeding fluctuations due to the human element.

Another contribution to maintenance of uniform roping is the avoidance of overfeeding quantities of roping waste. This material usually contains less moisture than freshly oiled stock and will tend to throw roping on the heavier side if too much is added at any one time. Control of this is strictly a matter of judgment in feeding the card.

Condition of Wire. The mill recently proved the influence of card wire condition on yarn strength by observing that after grinding the first breaker cylinder, the test of the yarn spun from production of that card increased 10 pounds.

Wire condition is considered important, particularly first breaker wire, and the carding overseer checks it often. Cylinder wire used by this mill is 32, 34, 35 (breaker, intermediate, finisher).

Setting. While setting techniques are generally standard and directed mainly to production of 3-run work, workers are set fairly close to all three cylinders.

Tapes. Yarn uniformity and appearance specifications are closely tied up with the mill approach to tape maintenance. Care to prevent tight and loose tapes pays off in avoiding robbing, especially on longer stock blends. Rough tapes are avoided to prevent rough looking yarns.

Tests. "Preventing" and "guarding against" are systematized for many of the instances cited herein by certain routine tests of roping:

1. Checking for size: A standard sizing test is made on roping after every card doff. One reeling is taken; if results are too high or too low, two or three others are taken and the results averaged. If size of roping does not fall within normal limits, the doffing is scrapped and reused.

2. New tapes, replacement of one tape, or tension change on tapes: after these changes in tape or tapes, a roping size test is made. A strip of paper is put in each of a pair (either top two or bottom two) of spools while the card is running. Spools are run two or three minutes, doffed, ends cut off spools using the paper marker as a depth guide, and end-to-end and spool-to-spool weight comparisons made. It has been found that the results of these weighings will remain pretty

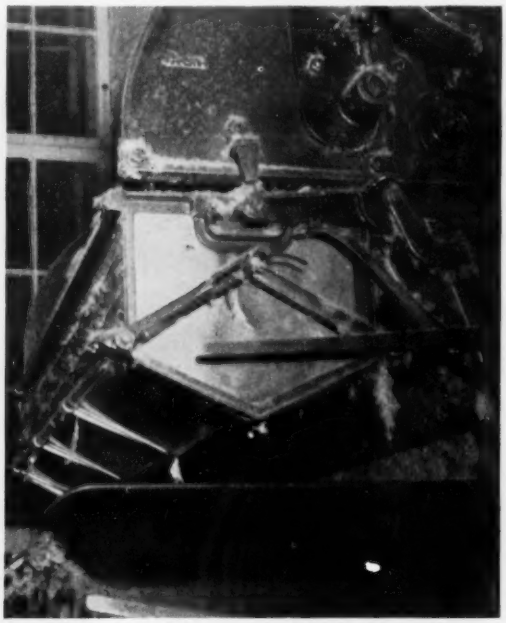
constant if nothing is changed mechanically, even if the stock being run is changed.

3. Spool-to-spool uniformity: This is checked weekly on each card by stopping card, doffing spools, taking a reeling from each spool, making weighings; an alternate test calls for inserting a paper strip in each spool, running for a few minutes, reeling back to the paper, and making weighings from the reelings at random.

4. When starting up a card: Card is run until roping weight becomes constant (about five minutes) before "throwing up" (starting up usable spools). During this period, all roping delivery is directed to the bottom spool; checks for con-

UNIFORM CONDITION of stock, and consequently uniform roving, is contributed to by picking blends at least three times, avoiding excessive moisture.

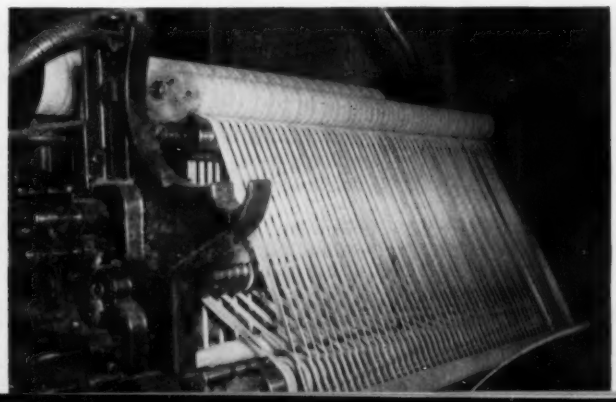
HUMAN ELEMENT as a contributing factor in producing uneven roping through inattention to card feeding has been reduced by extending hoppers (arrow).

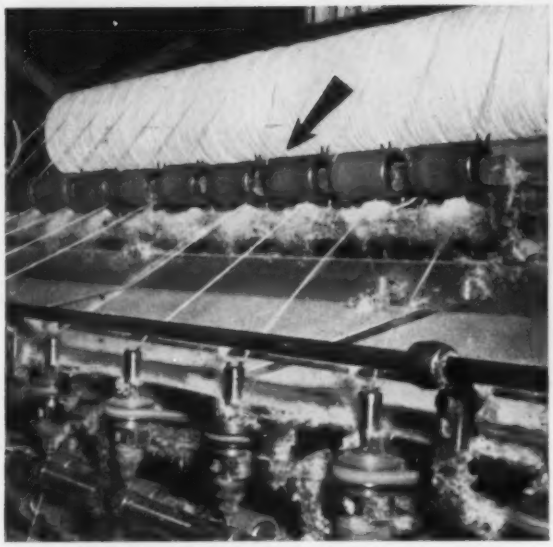


SCALE PAN will weigh both stock and moisture alike, and steps have been taken to make sure that the ratio between the two remains constant.

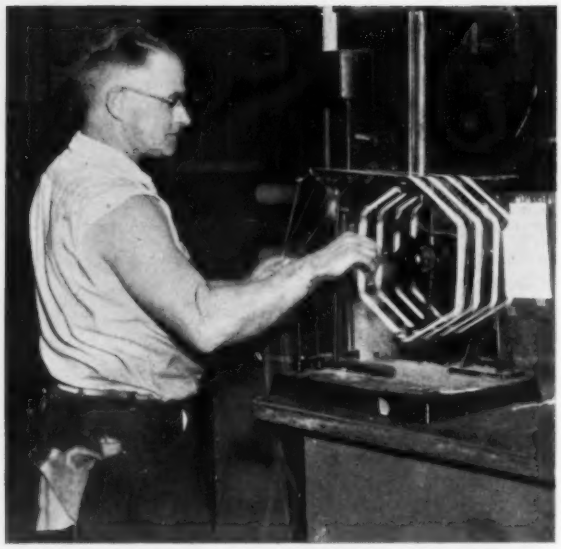
WIRE CONDITION is considered to be critical as it influences yarn strength. Breaker main cylinder is key; yarn strength increased 10 pounds after grinding in one instance.

TAPE TENSIONS and condition are watched closely, since they influence evenness and yarn appearance. If a change is made of a tape or tapes a weighing is made on affected roping.





DOUBLE FEED is spun for the short lengths necessary to make a twist test. This method, done at random frequencies, has proven representative of single twist.



SIZING UP test skeins is performed at start of lot and once a shift thereafter. Sheets on board are records of size and strength of material on each frame by lot.

STRENGTH TESTS are made on the same skeins used for sizing. Tolerances here are five pounds or less difference from the strength specified by customer.

REJECTIONS can happen when yarn or roving does not fall within size or strength tolerances; roving is returned to card hopper, yarn is first garnetted.

INSPECTION of coned yarn is made here by General Spinning's President Ellis. Appearance is also checked on spinning frame and by random seri-plane tests.

stant weight are made by taking standard 50-yard reelings and weighing.

Contamination. If a color change takes place on a card from dark to light, a white waste lot is generally run through to clear the card. At any color change, yarn spun from the first part of the lot (usually about 5 to 10 pounds) is discarded.

Spinning. A group of regular and spot checks are made on spinning frame production for size, strength, twist, and appearance:

Size. At the start-up of a lot, and once during each shift thereafter, standard 50-yard reelings are made by taking 10 yards each from five bobbins doffed from the frame. Weighing is made on the combined skeins. If size falls outside ±5 per cent of specified size, the yarn is scrapped, garnetted, and reused. Corrections of draft as required are made from results of this testing.

Strength. Whenever a test skein is prepared as described for size, a strength test (Scott) is made also. Each frame has its own record sheet for each lot run on it, and entries of both specifications are made as tested. Strength is usually specified by the customer; if a test falls short of the specification by five pounds or more, the lot is re-

jected by the mill.

Twist. After experimenting with twist testing single yarns, General Spinning has adopted a method whereby two ends are run together onto a spinning package and the two-ply results are taken to be representative of the twist in the singles. This testing is done on a spot-check basis and good results have been found by its use. Tolerances for the mill on this specification are ± ½ tpi.

Appearance. Appearance is one of those things that is checked at the mill almost unconsciously every time a supervisor walks past a spinning frame. Formal testing is also carried out by the seriplane method. Comparison samples are maintained in a permanent file of previous lots.

Cone Winding. Slub catchers are set on cone winders with a small mill gauge. For good slubbing, the catchers are set so that they won't chafe the yarn, and still will not allow a slub to go through.

Size, strength, appearance, and twist are spot checked from the cone packages.

Denim Wear Life Increased With Latex

BY JAMES FARROW*
Assistant Professor of Textile Technology
Alabama Polytechnic Institute
Auburn, Alabama
EXCLUSIVE

THE USE OF Hycar latex as a warp size for blue denim fabric has been reported as giving the fabric much greater abrasion resistance after several launderings than does starch size, better color retention in laundering, and better crockfastness in laundering and ironing. In wear tests, Hycar sized blue jeans were worn much longer than starch sized jeans before a hole was worn in the fabric.

A number of mill runs have been made by Alabama mills and a satisfactory method of application of Hycar on the slasher has been developed [see TEXTILE INDUSTRIES for December, 1953, pp. 116-118].

The purpose of this project was to make a comparison through actual field tests of the useful life of children's blue jeans made from Hycar sized fabrics with the useful life of those made from starch sized fabrics.

Test Conditions. The test jeans were worn by one hundred children, which was considered to be a sufficient number for accurate results. These children were selected from orphanages or children's homes in Central and South Alabama. This placed the test children in groups, so that records could be kept more easily and would be more accurate than if the children lived in private homes.

The fabric for the jeans was made in the Wetumpka plant of Alabama Mills. The same set of section beams was used for the Hycar and the starch warps. The starch warps were sized with the regular formula which the mill uses on warps for their standard blue denim.

The Hycar warps were sized with the formula which had been developed in previous mill runs. Selvage identification yarns (Hycar, red and green — starch, yellow) were placed in the selvage when the warps were slashed. The fabrics were woven at the same time on looms which are normally used for fabrics of this type.

The fabrics were cut and made into jeans by Phillips-Lester Manufacturing Co., Birmingham, Ala. Red thread was used for sewing pocket tacks and belt loops on the Hycar jeans, for identification purposes. The other seams were sewed with the regular color thread which was used on the starch jeans throughout. One pair of Hycar jeans and two pairs of starch jeans were made for each child in the test.

A pair of jeans was considered at the end of its useful life when a hole was worn through the fabric at any place on the jeans. Of course, the majority of the holes occurred in the knees, which receive the greatest amount of abrasion.

Results of Field Wear Test. A comparison of the number of laun-

TABLE I. Hycar Content of Sized Yarn

Yarn	Hycar on Warp Per Cent
Original (after slasher)	7.6
Fabric (after weaving)	6.0
Fabric (after 200 washes)	4.5

TABLE II. Comparison of Launderings Before Failure

	Number of Launderings Before Failure*		Improvement Hycar Over Starch Per Cent**
	Hycar	Starch	
Group A	12	10	20
Group B	16	11	41
Group C	32	24	46
Group D	41	34	48
Group E	14	10	57
Group F	15	10	63
Group G	19	16	22

*To nearest whole number.
**To nearest whole number; figures are average of improvement in each individual case in the group.

*Project leader, B. F. Goodrich Chemical Co. project at Auburn Research Foundation. This report has been condensed from the original version. Copies of the complete report may be obtained from B. F. Goodrich Chemical Co., 2060 East 9th St., Cleveland 15, Ohio.

derings before failure is shown in Table II. The jeans which were used in this tabulation were the first two pairs of jeans (one Hycar and one starch) which were issued to the children. An insufficient number of the third pair of jeans was worn out to make the results of any real value.

Project records show that actual wearing shortens the life of blue jeans more than does laundering; Hycar increases the wear life even more than it does the number of launderings before failure. The Hycar treated blue jeans issued to boys lasted an average of 45.5 per cent more launderings than did the starch treated jeans, but gave 55.5 extra days of wear. For blue jeans issued to girls, the comparative figures were 48.4 per cent and 74.9 per cent.

Conclusions. The conclusions which can be drawn from this project are:

1. The use of Hycar as a warp size does greatly increase the useful life of blue denim jeans.

2. The useful life of jeans is shortened by actual wearing more than by laundering. The use of Hycar increases the number of days wear even more than it increases the number of launderings.

3. Hycar treated jeans are more uniform in response to wear. The starched jeans tend to wear out more at the knees; the Hycar treated jeans are more resistant to the "knee action."

How to Get the Most from Spinning Builder Motions

Part 3. Combination Warp-Filling Wind*

BY MALEY CHAGRO
EXCLUSIVE

MANY SPINNERS prefer the combination wind (warp-filling) for both fine and coarse yarns. Still others prefer to package coarse counts on the straight warp build only. Of course there are still other choices. Each has adopted the particular build he uses because it meets his spinning and backwinding demands.

For instance, in one plant the spooler drum speed was 1200 rpm. At this speed the fine yarns sloughed from the shoulder of the combination build (warp-filling). A change to straight warp build reduced the sloughing but introduced another problem.

As the yarn unwound from the spinning bobbin the progressive increase in the traverse caused a corresponding increase in the yarn tension. The fine yarns began breaking on a scale which caused a greater problem than had the sloughing on the warp-filling build. Since sloughing was the lesser of the two evils, the warp-filling build was readopted.

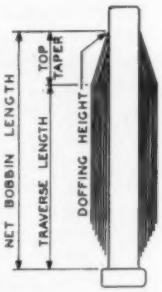
Discussion Limits. Since treatment of all the possible cams available and the procedures of setting each are beyond the scope of this article, this discussion is primarily devoted to the Whitin builder motion and a 3-to-1 ratio cam.

Some Features of the Warp-Filling Build. Probably the warp-filling build finds its greatest use in plants processing fine yarns. The lengthy doffing cycles allow the yarn to gather an objectionable quantity of grime. The warp-filling build, by traversing each layer of yarn over the entire length of the preceding layer, confines the exposed yarn to the area of the bottom taper.

The warp-filling build combines the above cleanliness factor of the straight warp build with the high-speed backwinding qualities of the straight filling build. However, some compromise is necessary since, naturally, both builds are not adopted in their entireties.

The build is effected through traversing the first layer of yarn over a great portion of the bobbin length. Each succeeding layer is started in a position above the starting point of the preceding layer. With the traverse length remaining constant, the taper at the top is formed by the overrun of the layers.

By the same picking system the bottom taper is formed through each layer's being positioned higher on the bobbin than was the preceding layer. This taper, when properly built, does not allow the yarn coils to fall below the bottom shoulder, to cause binding during backwinding.



Changing to the Warp-Filling Build. As in the straight filling build the filling arm must be used.

There is no cut-and-dried procedure for determining the traverse length for any particular length of bobbin. This fact alone will emphasize the need for adequate records; for once determined, the traverse length can be committed to a system. Every setting adopted in the changeover should be carefully recorded.

The amount of taper to be used must be determined tentatively. This may be an enlightened guess, an approximation based on previous tapers used with other builds, or one approximating the ring diameter. Any choice made is subject to slight changes at least.

The second point to be determined is the greatest height that yarn can be coiled on the bobbin without running into tangling or sloughing difficulties. This figure is added to the tentative taper adopted above, and the sum of the two subtracted from the bobbin length. The difference is the trav-

*This is the concluding installment of three articles on "How to Get the Most from Spinning Builder Motions" written by Mr. Chagro. The previous articles appearing in TEXTILE INDUSTRIES were "Straight Warp Wind," June 1956, and "Straight Filling Wind," July 1956.

erse length.

A fertile source of discussion is the issue of fast-rail-traverse-upward vs fast-rail-traverse-downward. In theory at least the fast-downward adherents have a point or two in their favor.

Bobbins built under the fast-downward, slow-upward stroke are unwound with the coils of yarn being pulled away from subsequent coils, not into them. As the yarn unwinds from the nose of the package it is fed from coils of increasing diameter, and thus avoids the loosening effect of the yarn being dragged across or against coils of decreasing diameter.

The latter effect seems to be a hazard inherent to the slow downward traverse. Yet mills operate successfully with either or both systems.

The spinner and the weaver are likely to be the persons indulging in the most heated of the discussions. The spinner doesn't like to impose added strain on his yarn by dropping his rails quickly away from his feed rolls. The weaver doesn't like sloughing bobbins even if they come from good running spinning.

Whatever the decisions on the direction and corresponding speeds of the rail traverse, the change-over begins with lowering and locking the ring rail. Install the 3-to-1 heart-shaped cam to give the desired fast-downward or the fast-upward traverse. The fulcrum should be on center.

Set the quadrant 2¼" to 2½" above its lowest point for an eight-inch bobbin, or 1¾" to 2" for a ten-inch bobbin. These suggested settings are within the traverse range as a rule, and can be used as a base from which the traverse for other bobbin lengths can be approximated.

Release the rail (lay) gear and turn the cam by hand until the toe is centered over the pitman roll (cam roll). Unlock the ring rail and note its position. It may be necessary to raise or lower the rail to bring it near its normal bottom starting point.

Pencil the bobbin to note the rail position. Lock the rail and turn the cam by hand until the heel of the cam is over the pitman roll. Unlock the rail and pencil the bobbin to mark the rail position.

The distance between the marks is the traverse length for this combination of fulcrum and filling arm settings. This length must be corrected to the figure originally adopted for the traverse length. This is done through the chain hook position on the filling arm and through the fulcrum height. The ring rail must be finally positioned to the correct starting point.

On frames equipped with Saco-Lowell builders the filling drum is used. Otherwise the procedure approximates that of the set-up on the Whitin system.

Forming the Package. The bobbin build on the new set-up may or may not fill up the rings at the first doff. If not, the pick and the lay gear will have to be changed singly or in combination. These, unless the traverse is obviously wrong, should be changed first.

If the bobbin reaches the doffing height without the rings being full, change the lay gear to give closer spacing of the coils. If the lay is correct already, reduce the pick slightly. Caution: Reducing the pick will shorten the taper.

Don't let the taper shorten until the bottom taper allows coils of yarn to fall below the shoulder. This will give trouble in backwinding.

If the closest settings possible in the lay and in the pick still do not fill the rings, the taper must be shortened and the procedure checked out again.

The top taper can be a trouble spot if there is excessive cam dwell at that point. Anytime this becomes a factor it usually can be corrected by traversing the rail faster past that point. Of course the rail speed cannot be adjusted to compensate for any great magnitude of dwell.

Once the pick and gear combination has been established, changes in the combination can be calculated from this formula: old pick combination x old lay gear divided by the new pick combination equals the new lay gear. Thus if the pick is 5, the lay gear has 28 teeth, and a new pick of 4 is desired, the new lay gear is calculated:

$$\frac{28 \times 5}{4} = 35.$$

Maintenance Men Play Major Role in Purchase of New Equipment

MAINTENANCE engineers are rapidly assuming major roles in decisions for the purchase of plant equipment, according to findings in a study just published by Clapp & Poliak, Inc., New York exposition management firm which produces the Plant Maintenance & Engineering Show.

Sixty-six per cent of those interviewed play a major part in purchase of new capital equipment, and 79 per cent reported that maintenance executives sway decisions on what brand is to be purchased. Asked whether the influence of maintenance executives on purchasing is increasing or waning, 78 per cent reported that influence was on the way up; 22 per cent said it was about the same and none reported any lessening of influence.

"The emergence of the plant and maintenance engineer as a buying influence indicates that capital equipment manufacturers must widen their sales approach to the plant operating team to include this new, important purchasing factor," the Clapp & Poliak summary of the report states.

According to the announcement, the study was conducted by Kemp Research Organization, Rochester, N. Y. Names were selected at random from a list of visitors to the last Plant Maintenance & Engineering Show, but the executives were interviewed in their offices without knowledge of the purpose of the study, nor the sponsor.

Warp Sizing—Article 4*

BY PAUL V. SEYDEL, D. Sc.
Seydel-Woolley & Co.
EXCLUSIVE

Materials for Sizing

Adhesives or Binders. Lubricants and Softeners. Deliquescents. Antiseptics. Weighting Materials. Water. Penetrants. Antifoaming Agents. Tints and Dyes. Starch Thinners and Film Modifiers. Commercial Compounds.

MATERIALS used for sizing are about like the materials used in baking a cake. A good cook can make a passable cake with low-grade materials, but a poor cook can ruin the best of materials. To have a good cake it is necessary to have both good materials and a good cook. And to obtain a well-sized warp, the slasher man must be furnished with quality materials which are the same every time he gets a new batch.

But too much reliance can not be put on the materials alone. They must be properly handled, and the slashing equipment must be kept in tip-top shape for the best results. A good size will make bad yarns run better. No size yet developed will make a good yarn from a bad one, or produce a high-grade warp in an inefficient slasher room.

Care in the choice of materials** will save many times the amount of time spent on their selection. Particular attention should be paid to obtaining uniform materials. This can usually be guaranteed by dealing with companies which have a reputation that they must uphold.

Trying New Products. With regard to trying new brands or new types of materials from time to time, the thought behind this is good. But the superintendent should make such trials only at a time when he can afford to give his own time to making certain that any changes noticed are really due to the materials, and not to normal variations that show up now and then in a mill due to labor or to cotton or rayon variations.

The mill man who tries every new thing that comes along without seriously investigating the results produced by each one, usually ends up with no more knowledge, and with a much more erratic weave room.

The list of possible materials for use in sizing is great. This chapter will deal with the general types of materials, and describe several examples in each type of the more common materials. Choice of a material in each category will depend on many considerations such as uniformity, availability, effect produced on the sized warp as compared with other materials in the same category, cost, compatibility with other materials used, etc.

The mere presence of certain materials is not sufficient to produce a good size. For instance, we might say that a good soap should contain at least 75 per cent of tallow. But a mixture of 75 per cent tallow and 25 per cent starch would not be worth much for washing. The tallow must first be transformed into a good detergent by chemical reaction with alkali. Materials must be properly combined to be effective.

Types of Materials. Materials for sizing are classified into different categories according to the qualities they give the size. Some may fall into more than one category, as for instance, zinc chloride, which is at the same time a preservative, a deliquescent, and a film-modifying agent for starch.

The categories generally considered are: adhesives or binders, softeners, lubricants (these two are generally confused, but are not the same), deliquescents, penetrants, preservatives, weighting agents, anti-foaming agents, chemicals for thinning starch, chemicals for modifying starch films or other film-forming agents, tints and dyes, and water.

Adhesives or Binders. This classification includes starches, flours, dextrins, gums, glues, gelatins, and synthetic binders. We will take up first the discussion of starches and flours, which form the basic ingredients of cotton mill sizes.

The difference between a flour and a starch is this: In the case of flour the grain has simply been ground and freed from the husk and other impurities, but still contains gluten, whereas starches are flour from which the gluten has been removed.

Gluten is a gummy substance which binds the starch grains in groups. There are a number of different starches found in nature, but the ones of most interest to the mill man are those of corn, sometimes called maize; potato, sometimes called farina; tapioca, also known as cassava; sago; wheat; rice; and sweet potato.

The use of flours for sizing was common many years ago, and held on for much longer in England than it did in America. It is understood that the use of flour is still current in Indian textile practice. This is presumably a question of economics and availability or lack of availability of uniform starches.

Wheat flour has good adhesive properties, due to its gluten content. However, it mildews much more readily than corn starch, and it is not as uniform as the usual commercial grades of corn starch. It must be carefully watched on storage because it is subject to at-

*This series of articles, which deals with all phases of the warp sizing operation for cotton yarns and yarns produced from man-made fibers, began in the May, 1956, issue of TEXTILE INDUSTRIES.

**The author wishes to acknowledge indebtedness to Dr. Norman F. Kennedy and his associates of the Corn Industries Research Foundation, who kindly read and criticized the part on starch and starch products.

Chemistry and Industry of Starch by Ralph Kerr, Academic Press, 2nd Edition. The author recommends this as an excellent up-to-date review on starch and its uses.

tack by weevils and other tiny beasts. Furthermore, its very adhesive qualities which help it hold to the yarns, increase difficulties encountered due to sticking on slasher rolls and cylinders.

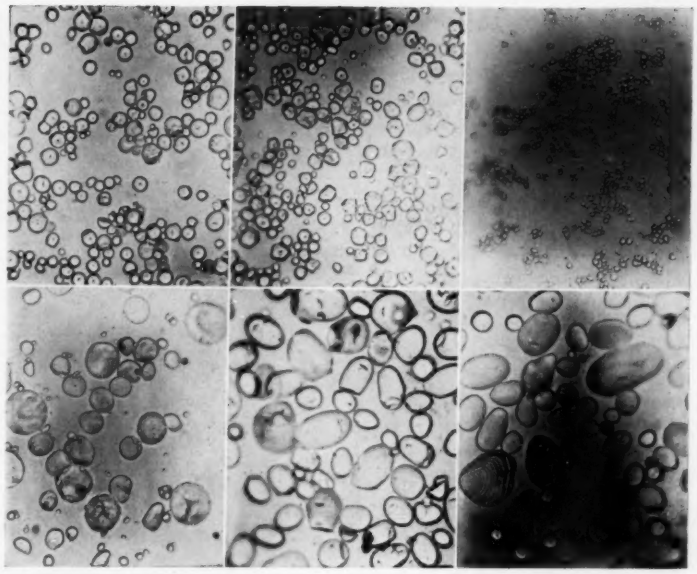
Generally, m o d e r n European slashing is done with potato starch, which in Europe is cheaper than corn starch.

Starches in general are prepared from the flour or meal by a washing process. This is sometimes purely mechanical washing with water, though usually with the assistance of chemicals. Thin-boiling starches are normal starches that have been treated chemically or by heat, or both, to modify the thickness of the boiled solution that is characteristic of starch. Most of the thin-boiling starches made in this country are produced by heating with acids below the gelatinization point. Simple heat treatment generally is practiced for dextrin production.

A description of the starch granules will help to picture what happens in the formation of starch pastes. The photographs* on this page show the form of several types of starch granules. The form is characteristic for each type of starch and they may be identified under the microscope.

Pasting of Starch. These granules are composed of two types of starch carbohydrate, known as alpha amylose and beta amylose. The former is insoluble, the latter soluble in water. The alpha amylose functions as a membrane enveloping the soluble beta amylose.

In order to get a simple picture of these granules, we may consider the two amyloses to be similar to a rubber sack filled with soluble powder. The sack is porous, allowing water to enter, but not allowing the powder to filter out. Cold water enters very little, if at all. Above a certain temperature, which varies with the type of starch, the water will begin to soak into the sack, and the warmer the water, the faster it will penetrate. As it soaks in it dissolves the beta amylose, and the sack begins to swell.



These photomicrographs of various starches show structures of (top, left to right) tapioca, corn, rice, (below) rye, sago, and potato.

This membrane of alpha amylose is softened and plasticized by warm water, allowing the volume occupied by the expanded sack to be many times that of the original granule. The result is a liquid full of swollen sacks of beta amylose. If you were small enough to see it and to swim through it, you might make the following comparison:

At first the granules would be stirred up in your swimming pool like so many empty balloons. On heating, they would begin to take up water till most of the water in the pool was in the balloons. Then, any motion in the pool, such as swimming through it or draining it would be very difficult due to the interference of the balloons crowding against each other. We would say that the pool full of water had become viscous.

The starch paste is viscous simply because of the presence of the swollen granules. It has been proven that when the two types of amylose are separated and dissolved or dispersed in water, the viscosity of the water is practically unaffected.

Effect of Heating and Agitation. Prolonged heating will very slowly stretch the granules until they rupture. However, the effect of mechanical agitation is much greater. Rubbing of the granules together, or against a paddle or a

Canna starch (top to bottom) normal; pasted at 65C; and 95C.

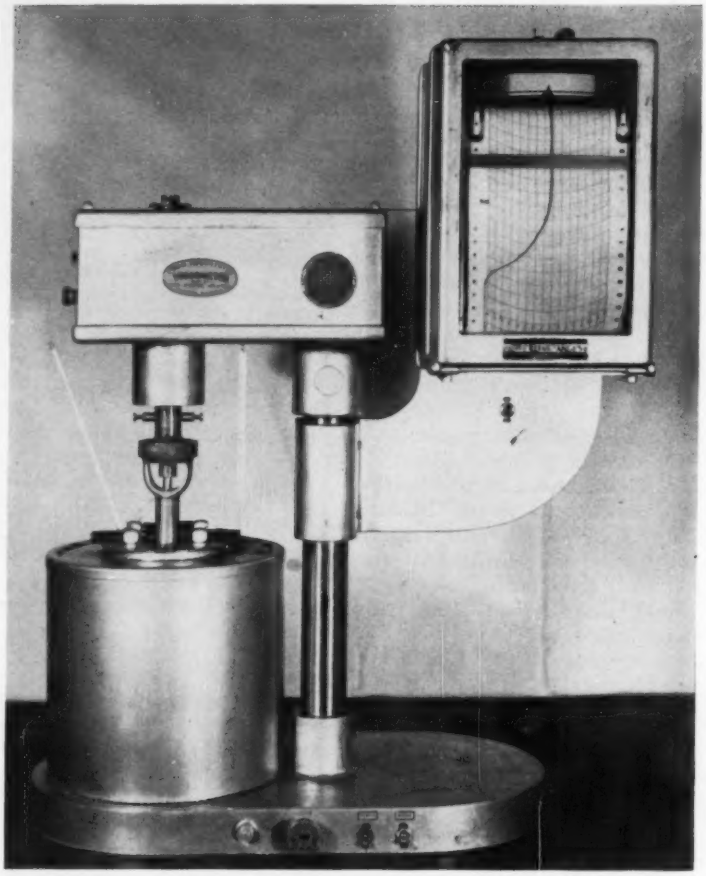
*Photos made by Dr. O. A. Sjostrom and furnished for use by courtesy of the Corn Industries Research Foundation.

pump part will break them down quickly, allowing the beta amylose solution to be dispersed. The bits of sack, like broken balloons, no longer interfere to any great extent with the flow, and the viscosity falls off.

This simplified description is not a highly exact scientific interpretation of what goes on when starch granules are pasted, but the accompanying set of photographs (on page 127) show that in effect the description is fairly accurate.

The photos show granules of normal canna starch, then the granules partly swollen at 65 degrees C, finally the granules still more swollen at 95 degrees C. As heating continues, the granules swell still more, the outlines become more and more indistinct, and observation becomes increasingly more difficult.

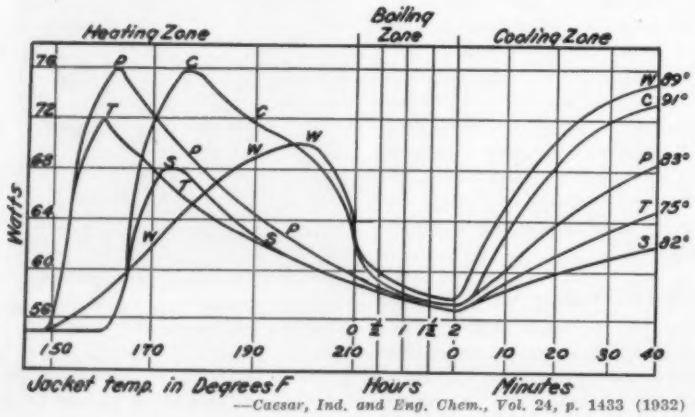
(A more exact description of the granules will describe them as formed in layers, like an onion. Also certain experiments in mechanical disruption of the granules show that radial membranes exist that are also water-resistant. However, for our purposes, although we know that they are not actually simple sacks, we know their pasting behavior, and the photomicrographs show that this concept is accurate enough to enable the layman to understand starch properties.)



The Corn Industries Viscometer is used for determining the paste characteristics of starches.

The accompanying graph shows the viscosity curves for various starches plotted first against the temperature while heating, then against time while holding heat, and while cooling. The viscosities are comparative, being measured by the power input required to operate the stirring motor.

Viscosity curves for C-corn starch; P-potato starch; S-sago flour; T-tapioca flour; and W-wheat starch, at 20% concentration.



—Caesar, Ind. and Eng. Chem., Vol. 24, p. 1433 (1932)

Caesar says of this graph: "Certain similarities and dissimilarities are striking. Potato starch and tapioca are practically identical in their gelatinization range and in the form of their curves beyond the peak bodies; corn (this sample is exceptionally heavy-bodied) and sago also gelatinize approximately together (at a temperature range about 10 degrees F higher than potato and tapioca), but differ to a marked extent thereafter; wheat starch commences to gelatinize at the temperature of potato and tapioca, but the thickening process is comparatively slow, a temperature of 200 degrees F in the jacket (185 degrees paste temperature) marking the peak. At this temperature the consistency of tapioca has been reduced approximately 70 per cent, potato 69 per cent, sago 62 per cent, and corn

29 per cent.

"Microscopic examination of the wheat paste at 185 degrees F reveals the explanation for its unusual body. The cells are practically intact, very little rupture or pronounced distortion having taken place. Above 185 degrees F a very rapid thinning occurs (in corn also), and a microscopic examination now reveals a marked degree of cell rupture. The cells of tapioca, potato, and sago are relatively fragile."

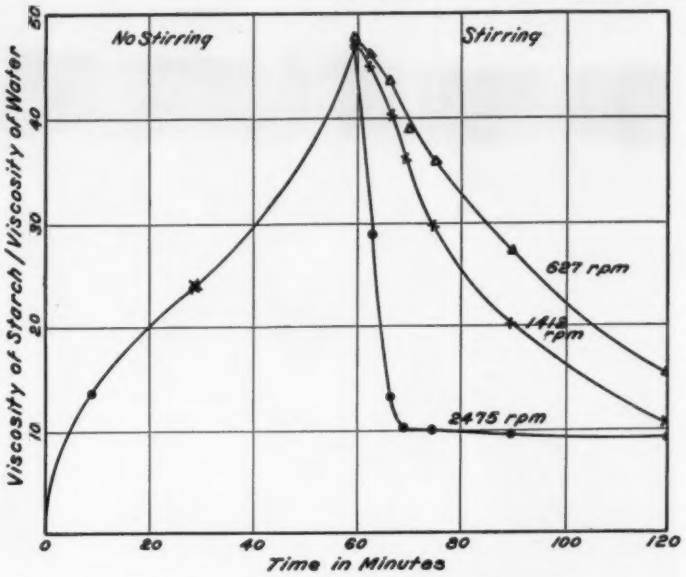
Viscosity of Starches. At lower concentrations and with starches from other sources the relative heights of the curves may vary, but the general form of the curves will remain the same for each type of starch. Some starches reach the maximum viscosity more slowly because their alpha amylose membranes will not take up water as quickly as others. There is no definite point where swelling stops and breakage begins. With heating and stirring, both are going on simultaneously.

Since the viscosity (the reciprocal or reverse of fluidity) of the size mixture is very important, a close study of the viscosity curves is worth while. Potato starch generally reaches a higher viscosity than corn (as noted by Caesar, his sample of corn is unusually heavy-bodied). But the viscosity of corn starch does not fall off as rapidly as potato. Therefore the time of cooking will have less effect on corn than it will have on potato. Immediately after reaching the peak, the viscosity falls off rapidly. Later the changes in viscosity are not so rapid.

It is preferable to sacrifice some of the viscosity for uniformity. For this reason, the starch paste should be cooked until the change in viscosity with continued cooking is small. The cooking time advisable is dependent on the type of starch. The rate of stirring and vigor of the boil will also affect the rate of change of viscosity, because the mechanical action is responsible for the breakdown of the cell sacs.

To illustrate this, the accompanying graph shows the effect of stirring at different speeds on the viscosity of a potato starch paste. It is this effect of mechanical action on a starch paste that is the basis for the use of the homogenizer and other mechanical devices in starch preparation.

—*Katz, Textile Research, Vol. 9, p. 75 (1938)*



Effect of stirring on 1% potato starch paste.

Starch Qualities as Sizing Agent. Let us keep in mind as we proceed that the qualities which give starch its usefulness as a sizing agent are: first, its ability to form a film; second, its adhesiveness, by which is meant its ability to stick to the substances; third, its viscosity or ability to thicken the mix so that more of it will adhere to the yarn than would if it were thinner.

The Shirley Institute of the British Cotton Industry Research Association has made very careful measurements on the properties of starch films at different humidities (see, for instance, Peirce, *Journal of the Textile Institute*, vol. 19, p. 237). Dry films are quite brittle. Films at humidities over 80 per cent are plastic, and have practically no elasticity.

The most effective films are those held at humidities between 70 and 80 per cent, under which conditions they retain the maximum toughness and elasticity. The load-extension diagrams of starch films resemble that of copper—a moderately ductile metal. There is no definite yield point. Different types of natural unmodified starches show comparatively little difference in film properties despite a wide variation in pasting and gelling properties. Modified starches in general produce weaker films than normal starches.

Factors Affecting Starch Film. Starch films are weakened by small quantities of soap. Fats and certain other materials (tallow, glycerine, sulfonated oils) in 5 per cent concentration will produce weakening. In sizing, this is counter-balanced by other properties given the yarn, such as lubrication or softening.

The rate of congealing of a starch paste on cooling will affect its properties in sizing. At first thought it might seem that the size film will be dried on the slasher before it has a chance to cool, but this is not so. If the warp sheet is felt between the size box and the drying cylinder, it is obvious that it cools off quite a lot in about one yard of travel—at the most in two or three seconds.

Then any size which congeals too quickly, all other qualities being alike, will not have the chance to penetrate sufficiently to anchor itself to the yarn. A slower congealing starch such as potato, will have more opportunity to spread

The starch film on the yarn does not dry before it cools. Between the time the yarn is sized in the box and passes to the first drying cylinder, as shown here, the size film has cooled considerably. The action of the starch paste when cooling is an important factor.

evenly over the yarn and cover its defects. It is probably for this reason that potato starch is considered better for fine goods than corn starch. However, if the paste congeals too slowly, sticking on the cylinders will result. Most fats and certain chemicals will retard the rate of starch congealing. This effect, however, does not in this case increase sticking tendencies, since the lubricating action of the fats counteracts any inclination toward sticking.

Action of Starch on Cooling. The action of starch pastes on cooling is important in sizing. As the temperature drops, the pastes of most starches thicken rapidly until they reach a gel condition. With a thicker paste, more size will be taken up, but on the other hand, penetration will not be as good, and the adhesive properties of the gel are not as good as those of the hot starch paste. For this reason, a great increase in shedding is usually observed when the size box is run too cool.

Hard Size and Shedding. It is a characteristic of many starches that they form what is known as a "non-reversible gel" on cooling. That is, the starch paste sets to a non-flowing, jelly-like mass, which does not become a liquid again on heating, as do gelatin and other "reversible gels." The starch gel may be broken up by strong agitation, and a superficial inspection may make it seem that the gel is a paste. However, it is only a broken gel, and no amount of heating and stirring will ever again make a smooth paste of this mixture. This can readily be seen on attempts to pour some of this broken gel through a screen; a large number of small jellied particles will be collected on the screen.

Obviously, such a mixture will not form a smooth, continuous size film, and is to be carefully avoided.

Where stirring is inadequate, lumps of gel or "hard size" will form due to local cooling or to local evaporation of the water contained in the size. These lumps are extremely difficult or impossible to mix again into the size, and will cause faulty warps on coming into contact with the yarn.

Another thing that must be watched carefully is the drying of the starch size film. If it is baked by too much heat, it will become brittle and tend to flake or shed off the yarn. No amount of humidity in the weave room will ever regain the lost flexibility of a baked yarn.

A starch film which has been dried too much also has a disadvantage of very slow moisture pick-up in the weave room. The tendency of slasher men in the past to overdry warps due to fear of mildew is fortunately being overcome today through educa-

tion, and the use of automatic moisture and temperature controls, with a resulting improvement in the weave room.

Starch pastes are normally weakly acid, having a pH between 5 and 6. These solutions are weakly buffered, and can be changed with small amounts of acid or alkali.

Corn Starch. Maize or corn starch is the starch most used in this country for sizing purposes, both in its natural form and converted into thin boiling starch. The main virtues of corn starch are that its price does not fluctuate as widely as that of other starches, the supply in this country is greater and more uniform in quality, and the price is generally considerably lower than that of the better grades of other starches. It is produced mostly in America.

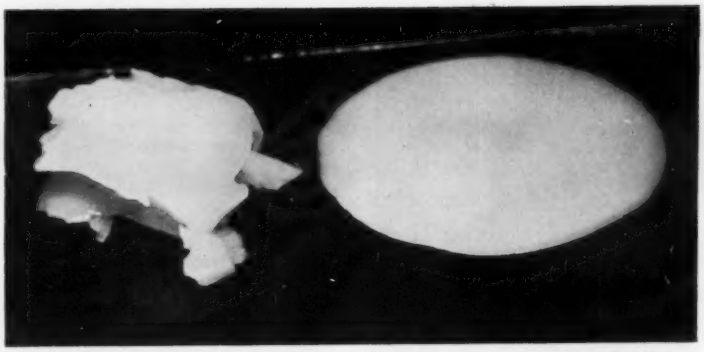
It has fair adhesive and sizing qualities, its main objection being that it has a harsher feel than many of the other starches. This can, however, be overcome by the use of a good sizing compound, and to a certain extent by admixture of other starches, especially potato.

The grade most commonly used is called pearl corn starch, which refers to its granular form and appearance, and may refer to both natural and thin-boiling starches, although many people use the term to refer to natural corn starch as opposed to the modified starches.

Potato Starch. Potato starch used to be produced principally in Europe, the Holland potato starch being the best known to sizers. In recent years the Maine and Idaho potato starches have been greatly improved and are now in wide use.

Potato starch has the characteristic of congealing more slowly than corn, giving a smoother feel, and a more transparent paste. For these reasons it is preferred for fine goods despite its higher price. Its paste is generally more viscous than thick-boiling corn starch. With regard to transparency, properly treated corn starch will give as transparent a film as will potato.

Sweet Potato Starch. A bulletin of the Alabama Polytechnic Institute Engineering Experiment Station describes extensive tests made on sweet potato starch as a sizing agent. This starch was found to be equal to and in some respects superior to another high-grade commercial starch. Yarns sized with it showed more elasticity and abrasion resistance, and a mill test indicated fewer loom stops. This starch has so far been used only in limited quantities. Its manufacture was carried out experimentally for a few years, then dropped, presumably for economic reasons.



Cold size. On the left, a corn starch-based size forms a gel on cooling and will not flow. On the right, a cooled size mix prepared from tapioca, which does not gel.

Tapioca. Tapioca starch or tapioca flour is somewhat thinner boiling than corn or potato starch. It is a root starch, principally produced in Brazil and the West Indies. Due to its method of manufacture, being usually made in small plants by cheap labor, the cheaper grades seldom run uniform in viscosity and often contain considerable dirt and foreign matter. These grades must therefore be guarded against and not used for sizing purposes.

Tapioca does not gel as do most other starches, and has fairly good adhesive properties. Its lower viscosity and particularly its strong tendency to stick on the cylinders are disadvantages in warp sizing.

Sago. Sago starch, like tapioca, is not as uniform in its qualities as corn or potato. It is very difficult to obtain in a clean, pure condition. Its viscosity is between that of tapioca and corn. Sago gives a harsh feel generally, which may be somewhat decreased by prolonged boiling, but usually causes excessive heddle wear. It is produced from the pith of a number of different palm trees in the East Indies, India, and the Philippines.

Yucca. In Latin America, a great deal of yucca starch is used for slashing. The general characteristics of this starch, as far as sizing is concerned, are between tapioca and corn. This is, however, only a generalization, as most of the yucca starch is originally hand-processed, and its cleanliness and quality vary a great deal, not only from one locality to another but also from season to season.

The color of the yucca starch obtainable may vary from a light tan to a medium gray-brown. The darker shades are often accompanied by large amounts of foreign matter, so that size made from this starch should be carefully strained before using, to prevent damage to yarns. Part of the variation is due to the use of several different varieties of yucca for its manufacture. A good grade of yucca will size well, but may cause difficulties in sticking if the proper additives are not used.

Another difficulty found by the mills in using yucca is its extremely rapid price fluctuations, which result from its being processed when available and at the convenience of the local gentry. This makes it difficult to predict slashing costs.

Others. Many other starches could be used for sizing if they were produced in large enough quantities at reasonable prices. Wheat starch and flour make fair sizes but have bad sticking tenden-

Properties of gums vary. Compare relative fluidity of this 4% solution of dextrine with photos at the right.

Shown here is a 4% solution of gum tragasol (locust bean). Note lack of fluidity of product. This material is used mostly for printing pastes in textile finishing.

This 4% solution of apparatine is shown for comparison with photos at left.

cies. Rice, canna, barley, banana, and other plants produce starches. The author has seen several of these in use in Latin American mills, where it is difficult to obtain high-grade corn or potato starches at reasonable prices due to import duty restrictions. They are usually locally produced and hand processed, and of poor color and cleanliness, with little attempt at uniformity in their manufacture.

A commercially developed starch has been made from waxy corn, which is very similar to tapioca starch in giving a clear paste, and in not gelling on cooling. It could possibly be used in mixtures with other starches to decrease their gelling tendencies. Possibly a mixture of this with ordinary corn could replace potato starch.

A similar product is produced from a variety of sorghum, and the starch is known as "waxy sorghum." It has excellent sizing properties and good uniformity characteristics.

Thin-Boiling and Modified Starches. Most of the thin-boiling starches in use in the U. S. are made from corn starch. Heat, or an acid, or both, are generally used in their preparation. Enzymes, chloramines, and other chemicals may be used. The exact procedures for many of the specialty starches are generally well-guarded manufacturing secrets.

Production of these thin-boiling starches in quantity under strict control gives much more uniform products than the mill man can hope to produce in his own size kettle with non-technical help. Highly specialized equipment and technical supervision are used by the starch manufacturers to control the reaction, and careful blending of the finished products is practiced.

Thin-boiling starches find their principal uses where it is desired to get more weight of size on the yarn or produce a thicker size film. The viscosity limitations of thick-boiling starch will not allow more than a certain practical maximum size concentration. Thin-boiling starches also have the advantage of requiring less cooking than the regular starches.

Starch pastes having properties similar to those of thin-boiling starch pastes may be prepared from natural starches by the use of a homogenizer.

Binders. In addition to flour and starch, a number of natural and chemically prepared binders are available for sizing. These have in the past consisted principally of natural and starch gums. Modern research is developing synthetic materials. As yet they have shown no real improvement over starch for sizing cotton, and in addition the cost is much too high for sizing of cotton or spun rayons. These synthetic film-forming agents are being used presently for special demands for filament rayons and for many synthetic fibers. In the latter case, the cost of the material is not as important a factor as it is with cotton or spun rayons.

Gums. Gums are organic substances, amorphous—that is, having no crystalline or determinate form—like starch, mostly of vegetable origin and composed mainly of carbon, hydrogen, and oxygen; usually containing some inorganic matter and sometimes nitrogen. They are obtained either from vegetable exudation or treatment of the plant with proper solvent. They either dissolve in water or swell indefinitely until a mucilage is obtained.

The formation of gums is affected by temperature, moisture, climate, and other changes. From the chemical standpoint, such gums as gum arabic, gum tragacanth, and other gums of this class are acids of complex nature, yielding by hydrolysis sugars and simpler acids. The composition varies with the season, so that the properties of the gum of a certain plant are not always identical and therefore not uniform. They contain such ma-

terials as bassorin, cerasin, and arabin, depending upon the origin of the gum.

As far back as 1879, DePierre describes these gums and their application, and implies that starch properly blended and having received the proper chemical treatment will replace advantageously most of the natural gums and glues for sizing and finishing. Since then a great variety of gums have been produced from starch, some reacting to iodine more or less like starch, others having completely lost their property.

Percy Bean also implies the same things, as follows: "If the matter would be considered carefully, such gums as gum tragacanth would disappear from finishing altogether. In mixings where it is used, the amount of actual gum is infinitesimal, and what good results can be expected from this small quantity is beyond the understanding of the authors."

It may be said, however, in defense of such natural gums which require a great amount of water to obtain their solutions, that very small quantities of certain ingredients may be very active. However, the proper blending and the proper chemical treatment of starches undoubtedly produce gums of much lower cost and greater efficiency, besides being infinitely more uniform in composition and quality, and being much easier to preserve against decomposition, mildew, etc.

The purification of gums not derived from starches offers very serious problems, especially those which naturally have mucilaginous properties. Nature, not being concerned with textile problems, has filled them with impurities which must be eliminated. For this they are put in solution sometimes as weak as one or two per cent, involving costly and tedious processes of filtering and purification.

Starch, on the other hand, exists in nature in such a form as to be cheaply and easily purified, and when these starches are obtained in clean and pure state they are an excellent raw material for the production through a variety of chemical treatments of a long list of gums, in many ways far superior to the natural gums. Gums produced chemically are for this reason more reliable and more desirable as well as more economical than the natural gums.

Among the gums mostly used in sizing and finishing are:

Gum Arabic (Gum Acacia). This gum is derived mostly in Africa from a native acacia. It has very excellent adhesive properties and is susceptible of considerable changes in quality and properties according to whether it has been treated with an acid, an alkali, or different salts. The main constituent is arabin (arabic acid), which combines with a number of bases. Picked Turkey gum is the best.

Gum Tragacanth. This gum is the product of exudation from incisions in the stem of Astragalus-Gumifer growing in Western Asia, the principal markets being Smyrna and Constantinople. The best is the white flaky grade. It is dull white, translucent, or yellowish. Chemically it contains arabin and bassorin. It also contains about ten per cent of a soluble gum; five per cent of starch and cellulose; three per cent ash, mostly calcium salts; twenty per cent of water.

It is insoluble in alcohol and ether, and only slightly soluble in water. It swells up, forming a thick mucilage with a great volume of water, giving the iodine starch reaction. It is used as a stiffening material for textiles.

The inherent qualities of gum tragacanth from the standpoint of sizing and finishing are counterbalanced to a great extent in that it takes too much water to obtain a solution. Solutions are imperfect and not easily protected with antiseptics. The use of this and similar gums promotes the growth of micro-organisms such as mildew. The price is out of proportion to its value as a sizing and finishing ingredient, considering that its properties and those of similar gums can be matched by the proper blending of starch and gums derived from starch.

Locust Bean Gum, Gum Tragasol. Gum Tragasol is very similar to Gum Tragacanth in its properties but is obtained from the fruit of the carob tree, Ceratonia siliqua. This fruit is known as "locust bean," hence the more familiar term, locust bean gum. The gum comes from the kernel of the bean. A large amount of water is required to extract and purify the gum, and it is often sold in the form of a gel, without removing the water.

The gel may contain between two and four per cent of gum. Drying is expensive, so that the actual price paid for solid material is usually very high. This material is used mostly for printing pastes in textile finishing, where high viscosity at low solids content is a desirable property.

Cherry Tree Gum. This is a colorless or yellow substance with very good stiffening qualities. Its main ingredient is cerasin.

Sugar Beet Gum and a number of other gums are somewhat similar in appearance and action to those mentioned. The birch, the ash, the oak, the willow, and a number of other trees all yield a similar gum.

Carrageen, Sea Moss, Irish Moss, Iceland Moss are a number of species of sea weeds found on rocky seashores. After being gathered, the weed is washed, bleached in the sun and dried, and packed for the market. Pectin or vegetable jelly form the main constituent of the weed.

To prepare for use, the weed is steeped and boiled with water, then treated with acids and alkali. An alkaline treatment improves the adhesiveness of the mucilage. This mucilage is strained before use. Alcohol precipitates the pectin from its solution.

The advantages and objections to the use of these gums are similar to those mentioned in the case of gum tragacanth and gums of like nature.

Starch Gums. Starch is susceptible to many transformations through the action of chemicals; it can be used for the production of a long list of very useful materials, including sugar, alcohol, acetic acid, a great variety of gums, ranging from highly soluble to

quite insoluble; from highly adhesive to highly agglutinant, depending on treatment.

A number of acids, alkalies, and salts have decided and peculiar actions on starches, and it is possible to duplicate and make substitutes for most of the natural gums used in sizing and finishing—and in most cases greatly improve on such natural gums as gum tragacanth, bone glue, Irish moss, locust bean gum, etc. This is because they can be made from starches in great concentration, at lower cost, and with more dependable qualities, since the variations caused by nature in the natural state, due to changes in atmospheric conditions and soil, can be corrected and overcome.

Dextrines (Starch Gums, or British Gums). Carrying on the transformation of starch beyond the state called soluble starch and by hydrolysis or the elimination of water with acids, ferments, or heat, dextrine is obtained as an intermediate product between starch and sugar.

It is an excellent substitute for gum arabic, formerly used in the process of calico printing, and as a stiffening agent in sizing and finishing. It is the gum now used on the back of postage stamps. Its superiority to natural vegetable gums is due to its greater flexibility and elasticity, being less brittle than gum arabic when dried, yet its adhesive properties are excellent.

Commercial dextrines are produced by moistening potato, corn, tapioca, wheat, or other starches with dilute acid and drying with heat, or simply by heating the starch at high temperatures. Such dextrines contain dextrose and unconverted starch in considerable proportions. The production of pure dextrine is a delicate chemical problem.

"Rayon Gums." There are several varieties of chemically modified starches which are termed "rayon gums" because of their use in the trade for rayon sizing. Some of the gums commercially available are termed "oxidized starches;" others "chlorinated starches." Generally, the oxidized starches are prepared by treating starch under carefully controlled conditions with chlorine, or with sodium or calcium hypochlorite.

It is for this reason that they may be referred to as "chlorinated starches," even though the chemical reaction was not chlorination —that is, the chlorine does not enter into the starch molecule. The chlorine, or chlorine-containing reagent has simply functioned as an oxidizing agent.

These gums have a greater adhesive power than ordinary starches, and are similar to the root starches in that they do not have as strong a gelling tendency. In general, their film-forming properties, including the strength and smoothness of the film, are superior to those of the thin-boiling starches. The films are also tougher and less brittle than those of natural starch or of the thin-boiling starches. They are often recommended for use with dyed yarns because of their superior film clarity.

Another type of chemical modification of starches to produce rayon gums is the reaction of starch with ethylene oxide. This produces a hydroxyethyl ether derivative of the starch. These starch ether gums have the characteristic of being more readily soluble in water after having been cooked and dried into a film than are the normal and thin-boiling starches. Many of their other properties are similar to those of the chlorinated or oxidized starches. A wide range of ether gums is available, both in different viscosities and with varying extent of etherification.

Apparatine and Other Starch Gums. Besides dextrines and rayon gums a number of gums more or less soluble, more or less adhesive, more or less elastic, can be produced from starch. A fairly strong solution of potassium or sodium hydroxide added to a mixture of starch and water renders the opaque mixture perfectly transparent, producing a stiff, powerfully adhesive paste.

This paste after partial neutralization with an acid is called apparatine and was described as far back as 1879 by DePierre. It is an excellent gum, far out-weighing in quality a number of much more expensive natural gums.

Borax and a number of other metallic salts, such as zinc chloride, calcium chloride, etc., act on starches to produce different gums, many of them forming the basis of sizing and finishing gums of excellent qualities.

Analyzing Starch Gums. In analyzing such a starch gum an inexperienced chemist may report it simply as starch, especially if it happens to show an iodine reaction. This would be very misleading.

Take as an example three mixtures extremely different in physical appearance and in their application which will analyze identically. For instance:

Water, 65 per cent
Starch, 28 per cent
Total sodium and chlorine, 7 per cent.

Many difficulties will confront the chemist in explaining the difference in appearance and properties of the three gums.

First, after chemical treatment it will be practically impossible to differentiate between potato, corn, wheat, rice, and a number of other starches.

Second, unless he is a gum expert, with exceptional knowledge and experience, he may not know that the appearance and properties will depend on how the elements have been introduced.

The first gum may just be a boiled starch paste made of thin boiling starch and the addition of 7 per cent of common kitchen salt (NaCl).

The second may be obtained as follows: The starch is treated with hydrochloric acid up to a certain point until transformed into a very adhesive and sticky gum, then neutralized with caustic soda. It will have great adhesive properties such as gum on the back of postage stamps.

The third gum may be starch first mixed with a caustic soda solution, stirring for a period either cold or hot, then neutralized with hydrochloric acid. This gum will be tough, elastic, agglutinant, and have neither the paste value of starch paste nor the strong adhesiveness of dextrine, but will be wonderfully elastic and practically

insoluble once dried.

All three of these gums show iodine reaction and are likely to be reported as starch paste by the careless or incompetent analyst. The starch gums that do not react to iodine generally are a great puzzle to the inexperienced chemist, and the study of this subject is very fascinating to the enthusiastic gum chemist.

Gelatin, Glue, Bone Size. The raw materials used for the production of glues consist of the waste from leather plants, slaughter houses, trimmings of hides, and bones. The glue is extracted from these materials with water and acid at a high temperature; this solution is filtered into congealing boxes. Drying must be effected carefully to avoid spoiling the material.

Liquid glue is produced by the treatment of bone glue or gelatin with acid; it has good adhesive qualities. Gelatin is a finer grade of glue derived from skins and bones. Glues and gelatin have been used in sizing and finishing, especially where transparency of the size film is desired.

Gelatin has been used a great deal for sizing of rayon. However, this is principally due to the insistence of rayon finishers on a size that would be soluble in warm water. Practical mill tests have shown that starch sizes in general are superior in weavability to gelatin sizes.

The use of gelatin for spun rayons has been just about completely abandoned, now that spun rayon has developed into a large-volume, comparatively low-cost market. On the other hand, gelatin is still being used as the principal film-forming agent for filament yarn sizing. This is due in part to its ease of handling and making up of size solutions, partly due to the fact that it may be handled efficiently at much lower temperatures in the size box than is customary and necessary for the starch-based sizes. Also, in the case of filament yarns, it is felt that a lower viscosity size is of advantage, in that there will be less tendency for the yarns to be stuck together, and therefore less disruption of the surface fibers at the split rods.

In addition, it is desirable to have filament-woven goods undergo as little handling as possible in order to maintain the physical appearance—the sheen and smoothness that is characteristic of a non-fuzzy yarn. Any displacement of yarns shows up much more readily with filaments than with spun yarns.

Although gelatin is more readily desized than starch, its original cost is so high that the combined costs of sizing and desizing are in favor of the starch. Therefore, gelatin is used principally where the requirements of the finishing plant are put before those of the weaving mill.

When gelatin was first used for filament slashing, the highest grades were demanded, with the feeling that this was necessary in order to assure absence of troubles. Gelatin is graded according to color and to gel strength, and also the "hide glues" and "bone glues" are usually so designated, so that the source is known. There are some slight differences in properties, depending on the source, but they are not of first importance in slashing, assuming that an equivalent grade from either source is chosen.

The "gel strength" of the gelatin is an arbitrary measure of the resistance to deformation of a cooled and gelled solution of gelatin of standard concentration at a certain definite temperature. It is usually found that at higher temperatures, when the gelatin is melted to give a flowing liquid, that those with high gel strengths are more viscous than those with low gel strengths.

The gel strength of a gelatin seems to be dependent on the size of the protein molecules of which it is formed. The longer the molecule, the more it tangles with its neighbors; consequently the greater its tendency is to form a stiff gel or a viscous solution. Of two gelatins from the same source, one which has been overheated and mishandled in the extraction will be of a lower gel strength than the other, due to some breakdown of the larger molecules.

As would be expected, the gelatins with the higher gel strength are of the lightest color, showing more careful handling in their preparation, and a lower proportion of impurities. It is for this reason that often a mill will specify a high gel strength product.

Present-day usage demands gelatins with gel strength of from 150 to 250 grams. The higher gel strengths, of course are more costly, but it has not been found that their weaving characteristics are the best. Actually a gelatin with a very high gel strength will form too brittle a film for good sizing, and the lower strengths are chosen both because more may be used for the same money and because the film is more flexible.

It has been found that gelatin sizes require somewhat larger proportions of softener than do starch-based sizes for effective weaving. Also, the additives used with gelatin must be either water-soluble or fairly well water-dispersible, as gelatin is not as good a disperser as are the thicker starch pastes. Furthermore, gelatin is an excellent food for microorganisms, so that if the size is kept for any length of time, or if the yarns are not very carefully dried, appreciable amounts of antiseptic agents must be used in the size.

Casein. Casein, a protein derived from milk, has been tested as a size adhesive, but it produces a much weaker film and is much more difficult to desize than starch or gelatin.

Synthetic Binders. Several of the synthetic polymers developed in the last two decades have been tried recently for slashing, both alone and admixed with starches. Despite certain theoretical advantages, such as constant viscosity and greater folding endurance of films from these materials, they have not as yet proven to be superior sizes. The proof of the pudding—the weaving of the warp—still gives the preference to starch sizes. And this is completely aside from the cost factor which is definitely in favor of starches.

The results of the rayon slashing investigation made by the Textile Research Institute sum up the results obtained also in mills: "Several water-soluble synthetics were

tried but the sodium cellulose glycolate was the only one which gave satisfactory weaving under the conditions of the experiments. These products are of a very different nature than starch or gelatin, and it is quite possible that the usual mill conditions which were selected for these experiments put the synthetic products at a disadvantage . . . Inasmuch as . . . the synthetic products included in this study are now relatively expensive, . . . the possibility of their being used as 100% sizes is not immediate . . . "

The principal synthetics tested were: sodium cellulose glycolate, methyl cellulose (soluble in cold water but not in hot), sodium polyacrylate (too hygroscopic, but blended with starch showed good weaving qualities), polyvinyl alcohol, starch ethers, etc.

One of the main objections given by mill men to synthetics they have tried is that they were unable to get the fiber lay, with resultant trouble in weaving, the reed chafing the yarn and causing it to ball up.

Despite the disadvantages of these products for cotton and spun rayon sizing, they have been used in a number of places for special purposes, and are being used widely for filament yarns due to their property of being desizable with water alone. This allows a milder desizing and finishing treatment, tending to preserve the surface appearance of the goods.

CMC. Carboxymethylcellulose, also previously known as sodium cellulose glycolate, is a water-soluble cellulose derivative, which is dispersible in either hot or cold water. According to the literature, it has found wider use in sizing in Germany than in the U. S., although the reasons have never been quite clear. It is probably the best of the synthetic cellulose derivatives as far as sizing properties are concerned.

The film of this product is more flexible than that of starch, yet despite this, it does not seem to produce as good weaving efficiencies as a starch size. This may possibly be due to lack of as much experience in knowing how to use the product as we have with starch sizes, or it may be inherent in the nature of the material.

The cost of this product is too high for normal usage, as soft warps are obtained if the amounts used are cut very much below that of the starch formulas. It has found special application in blending with starches, to minimize the effect of stream pollution by desizing operations. The CMC has been found to absorb oxygen from the streams at a much lower rate than does enzyme - solubilized starch.

One caution to be observed in the use of CMC is that it is sensitive to variations in relative humidity, and will soften excessively at high humidities.

Styrene-Based Polymers. Water-soluble co-polymers of styrene and maleic acid have been developed for use in warp sizing. They are fair sizes, and may be used in quantities below the amounts used in starch sizing. However, their price has kept them out of any extended experimentation in the field of cotton or spun rayon sizing. They are in general use in sizing of filament viscose and acetate. They have been found to give quite satisfactory results, which are somewhat improved by the use of lubricants, and have to a certain extent replaced gelatin sizes.

This type of polymer is furnished in several variants. The most common is a sodium salt which may be desized by a water wash. Another type is solubilized by the use of ammonia. When this product is dried in the drying section of the slasher, the ammonia is driven off, and the polymer is no longer water-soluble, but requires an alkaline solution to dissolve it. This type is used for a permanent size for loom-finished goods.

PVA. Polyvinyl alcohol in several variations of viscosities, generally containing more or less small quantities of non-hydrolyzed polyvinyl acetate, is very readily water-soluble, and has been used to a certain extent for the slashing of synthetics, where its high cost is a secondary consideration. Its chief advantage is that it will adhere much more strongly to most of the synthetic yarns than do the other types of sizes available. It is quite sensitive to humidity variations, and will soften excessively at high humidities. It produces a smooth, very flexible film.

PVA finds its widest application at present as an additive to formulas requiring greater binding power, such as starch gum formulas used on spun acetates and synthetic yarns. It increases their pick-up and adhesion, and toughens and flexibilizes the heavy films that are normally required for prevention of fuzz balls with the very strong fibers found in synthetic yarns.

Latex Sizes. A recent development which has not yet been adopted by the industry, has been the experimentation with sizes of synthetic latices. These are water-dispersed elastomers, kept in dispersion by the use of emulsifying agents. Once this material has been applied to the yarns and dried, it is no longer water-dispersible, and remains as a permanent size for loom-finished goods. It is being particularly pushed for sizing of denims, since it is claimed to give greatly increased wear-resistance, plus a wash-proofing and crock-proofing covering film over the indigo dye.

The principal difficulty so far encountered is a difficulty of handling due to the lack of a satisfactory additive to prevent sticking on slasher cans and gumming of slasher and loom parts. If this could be obviated by proper variation of the latices or by the use of effective additives, this type of size would probably find at least a limited market for certain types of goods.

Summarizing, the presently used types of starch mixes have been adopted for cotton and most spun rayons because from the standpoint of the textile executive or mill superintendent, any desired type of gum can be made from the different starches or combination of same through chemical action on them. These can also be produced cheaper and in a cleaner state and higher degree of uniformity than is possible with the natural gums.

They can also be made so that a

higher concentration can be obtained in solution. It is impossible to obtain high concentrations of solids in a solution of the natural gums commonly used in old style sizing and finishing.

Further, most gums require considerable technique and length of time for them to go into solution or absorb uniformly large quantities of water. Therefore, it is inefficient to use dry gums of the natural type unless previously put into solution. This is necessary to insure the maximum efficiency from them. This handicap causes most mills to use gum which is already in solution, and as pointed out, since the natural gums can only be put into dilute solution, a great deal of waste is encountered in paying freight on the water content.

A lot of the disadvantages of natural gums are also overcome by the synthetic sizes, but their cost has limited their application to fields where certain requirements must be met, which the modified starch sizes have not yet been developed to meet.

(To be continued next issue)

Mr. Mill President, Is This What You Worry About?

COMPANY presidents worry more about developing a top management team than on any other business problem, Lyle M. Spencer, president of Science Research Associates, said recently.

Mr. Spencer, who talked on the subject "Better Ways of Building Top Management," said, "The key difference between owning a company and running a profitable business lies largely in the success a president achieves in organizing an effective, functioning team of top executives. Finding, training, and motivating the key executives, through whom a president must accomplish his work, is the thorniest and longest-lasting problem he faces."

This was one of the key findings from a research study conducted by the Young Presidents' Organization, a group comprised of men and women who became presidents of their concerns before reaching the age of 40.

A rule-of-thumb method to enable company presidents to organize and motivate their key executives more effectively has been developed from the findings, according to Mr. Spencer. Four outstanding characteristics of a good executive emerged from the source material, he said. They are:

1. The members of a good executive team possess remarkable flexibility. Regardless of their training and experience within the company, they are receptive to new ideas, able to adapt themselves quickly to changing conditions, and can withstand setbacks without losing their drive and enthusiasm.

2. A good executive team has depth. The temporary absence of one member of the team limits the organization and perhaps decreases its efficiency, but it does not leave the company paralyzed.

3. The members of a good executive team each build their own efficient division of the company with a minimum of routine supervision. The executive team members and their divisions are in a state of healthy rivalry with each other.

4. The executive team functions by balancing and controlling two impulses which are in essential conflict with each other. On the one hand, there is a desire for maintaining, improving, and continuing the status quo, for preserving the business, and for correcting the things that hamper the present functions of the business. The second impulse which drives the executive team is the impulse toward growth, toward developing new products, new markets, new kinds of business enterprises more profitable than the ones the company already has.

Mr. Spencer also said that the executive teams of most companies are "surprisingly small." They usually include only three or four persons besides the president — an administrator, who serves as the president's alter ego and keeps the company's day-to-day operations running smoothly; a sales manager; a production chief; and a financial officer who manages the company's capital. Other business posts rarely achieve top ranking in a company's inner circles.

If all the attributes and statistics were put together to form a composite key executive, the "average" would look something like this, according to Mr. Spencer.

1. He is currently holding a job that carries more responsibility than any job he has previously held.

2. More likely than not, he has come up from the ranks within the company.

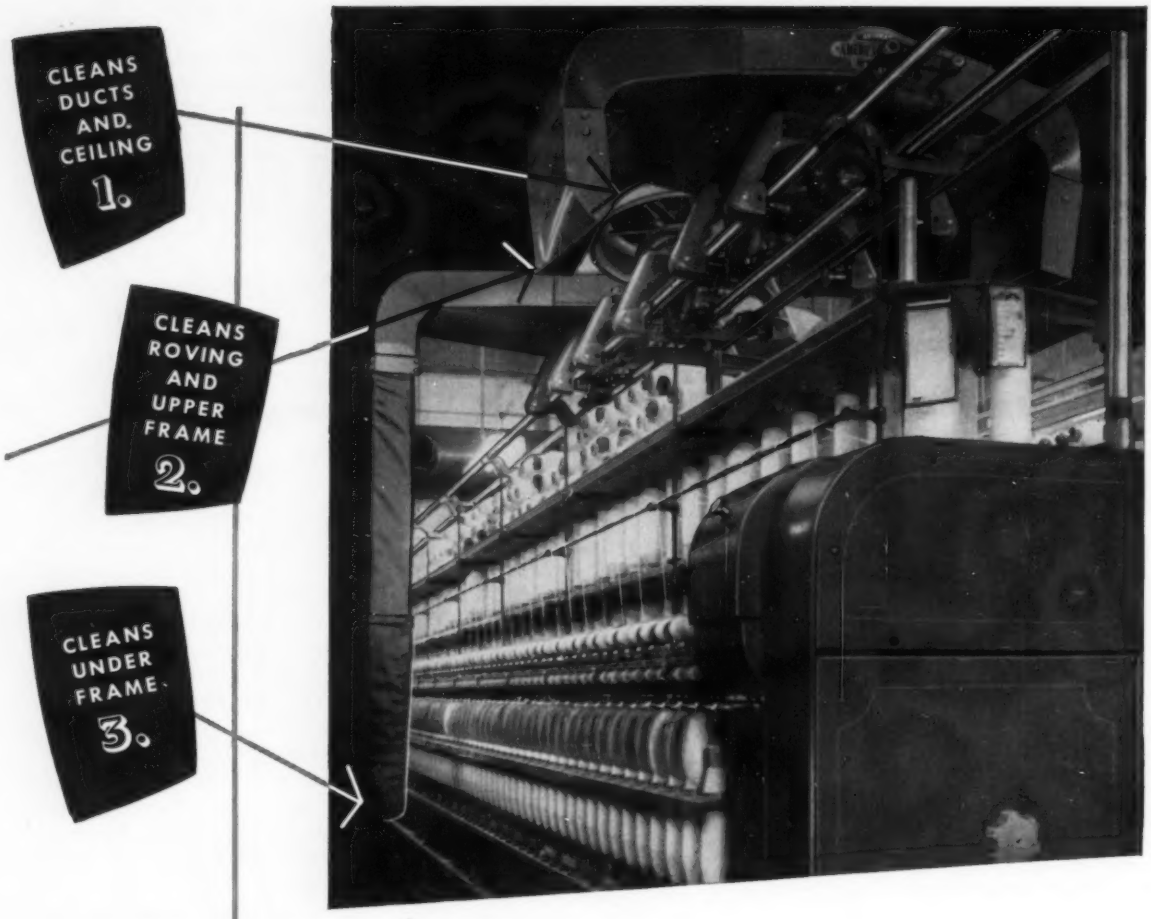
3. He has less education than his president and he feels defensive about it.

4. He is older than the president although he has held his present post for only three years.

5. Planning ahead, he looks forward to making a long-time career in his present company. Although he knows the chances of his becoming president are small, he is ambitious to expand the scope of his present job by helping his company to grow.

6. His present salary is about $13,200 yearly. Although he has succeeded in the business world faster than he expected to, he expects to earn a materially greater amount in the future, and the chances are one in three that he is actively dissatisfied with his present income.

The basic reward that the executive receives for his good performance on the job is his own feeling of personal satisfaction and his feeling that he has gained the esteem and respect of his fellow executives, the president, and his subordinates, according to Mr. Spencer.



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1. A high velocity air foil type fan cleans all ceiling areas.
2. A turbo type fan sends controlled air currents across roving and creel.
3. Another separate turbo fan directs high velocity currents toward the areas under the frame.

Travelling automatically as a unit, this new American MonoRail Cleaner covers as many as twelve frames depending on mill conditions.

Let an experienced engineer recommend the type of cleaning to give greatest coverage in your mill.

AMERICAN OVERHEAD HANDLING EQUIPMENT

MONORAIL COMPANY

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Best of Everything! '56 GRADUATES

THE DIPLOMAS have been presented, the prizes have been awarded, the speakers have said their platitudes, and now the Class of 1956 from America's textile schools has departed for the mills, the sales offices, the chemical labs, the graduate schools, and all the other expected and unexpected places where textile grads start their life's work.

Beginning on this page and continuing on pages 141 and 143 are the names of those who were graduated this year from the textile curricula of Alabama Polytechnic Institute, Bradford Durfee Technical Institute, Clemson College, Georgia Institute of Technology, Institute of Textile Technology, Lowell Technological Institute, North Carolina State College, Philadelphia Textile Institute, Rhode Island School of Design, and the two Canadian schools—Ecole des Textiles de la Province de Quebec and The Provincial Institute of Textiles.

The firm where each graduate is employed is given immediately after his name, if it was known at the time the information was compiled by the schools. The word "Military" after a graduate's name indicates that he was required to begin active service with one of the armed forces immediately after graduation.

To all the graduates, "We wish you well." — *The Editors.*

ALABAMA POLYTECHNIC INSTITUTE (Auburn)

Henry E. Austin, Jr., Military
Robert E. Bailey, Jr., Military
Edwin J. Bannister, United Merchants & Manufacturers, Inc.
Oscar L. Barrett, United Merchants & Manufacturers, Inc.
Zebbie M. Bush, Mt. Vernon Mills
William F. Dolan, National Oil Products Co.
James R. Edge, Military
James R. Eichelberger, W. A. Handley Mfg. Co.
Robert F. Hardy, Jr., Chemstrand Corp.
George W. Heard, United Merchants & Manufacturers, Inc.
Roy L. Hill, West Point Mfg. Co.
Richard C. Hyde, Callaway Mills Co.
Guy H. Kaylor, Wehadkee Yarn Mills
Loy S. Reynolds, Dan River Mills, Inc.
Lamson C. Robinson
James W. Sherrer, Crompton Highland Mills, Inc.
John R. Spivey, Borden Mills, Inc.
L. Ray Taunton, Celanese Corp. of America
Raymond H. Ulrich, Military
John A. Ward
Charles E. Willett, Tennessee Eastman Co.
Robert D. Word, Military

BRADFORD DURFEE TECHNICAL INSTITUTE

Roger J. Araujo, Graduate School, Brown University
Norman F. Audet, Research Development Dept., U. S. Army
James F. Corbett, Jr.
Francis A. Flynn
Walter Leach, Armstrong Cork Co.
John R. Marum
Walter G. Palmer, Military
John A. Sousa
David T. Sullivan, Military
Richard E. Violette, Douglas Aircraft

CLEMSON

Henry F. Addison, Blue Bell Garment Manufacturing Co.
I. Duane Alewine, American Enka Corp.
Everett S. Barton, Dan River Mills
Arthur G. Boudoucies, American Enka Corp.
A. B. Blanton, Jr., Cherokee Textile Mills

Clemson continued
Lawrence O. Bragg, Institute of Textile Technology
J. W. Brannen, Avonda'e Mills
James W. Bridwell, Du Pont
George W. Christian, Woodside Mills
Charles A. Davis, Military
Donald C. Davis, Tennessee Eastman Corp.
Howard G. Garner, Jr., U. S. Patent Office
Thomas C. Hamrick, United Merchants & Manufacturers, Inc.
William P. Heath, Jr., U. S. Patent Office
Bruce P. Holzschuh, U. S. Patent Office
Harry L. Hill, National Aniline Division
Rodney B. Hunt, U. S. Patent Office
C. P. Huntsr, Judson Mills
Jimmy R. King
Joe E. Long, Deering, Milliken Research Corp.
R. R. Mackey, U. S. Patent Office
Gerald D. Martin, U. S. Rubber Co.
C. R. Maxwell, Southern Worsted Mills
E. M. Moore
Richard P. Moore, Military
J. L. Moore, Military
Grenville D. Morgan, Military
Milner C. Moseley, Crawford Manufacturing Co.
William R. O'Dell, U. S. Rubber Co.
Bobby A. Painter, Chicopee Mfg. Corp.
Carl T. Pate, Jr., American Viscose Corp.
R. E. Patrick, Jr., Deering, Milliken Corp.
William J. Purvis, U. S. Rubber Co.
Stanley J. Reeves, Deering, Milliken Corp.
James D. Rhinehart, Inman Mills
Louis K. Rimrodt, U. S. Patent Office
R. R. Sanders, Jr., Avondale Mills
Thomas L. Shealy, Jr., Tennessee Eastman Corp.
Barron R. Simms, Military
Floyd H. Simpson, Jr., Abney Mills
John B. Smith, Joanna Cotton Mills Co.
Jimmy D. Smith, U. S. Patent Office
H. W. Sox
Billy R. Spencer, Albany Felt Co.
Bobby J. Sprouse, U. S. Patent Office
Emil O. Stahl, Jr., The Torrington Co.
James E. Still
Ansel C. Sutherland, American Enka Corp.
H. Douglas Thompson, Hamilton Cotton Co.
Charles E. Washington, Riegel Textile Corp.
Robert O. Willard, Burlington Industries
Robert J. Tisdale, Deering, Milliken Corp.
Franklin E. Williams, J. P. Stevens & Co., Inc.
Thomas E. Boyce, Joanna Cotton Mills Co.
Ronald L. Childress, Institute of Textile Technology

Clemson continued
James L. Galbraith, Woodside Mills
Lynn A. Hendricks, graduate work
Robert L. Holmes III, Institute of Textile Technology
Kenneth C. McAlister, Jr., Du Pont
Joseph M. McCown, Bouligny Co.
David R. Meyers, Institute of Textile Technology
John C. Sinclair, Jr., Bouligny Co.
John R. Swetenburg, Jr., Pacolet Mfg. Co.
Peter Turner, United Merchants & Manufacturers, Inc.
Bobby R. Clement, Deering, Milliken Corp.
Robert B. Huey, National Aniline Division
Guy D. Moulton, Esso Standard Oil Co.
William L. Polhemus, Pepperell Manufacturing Co.
Ralph B. Cureton

GEORGIA INSTITUTE OF TECHNOLOGY (Georgia Tech)

Johannes H. Lutjens, Mylu Carpet Co.
John A. Brackett, American Enka Corp.
James M. Buckner, Jr., National Aniline Division
Robert V. Clarke, Jr., Chemstrand Corp.
Charles K. Cobb, Military
William P. Davis
Carlos S. DeGreiff
Jerry A. Dubrof, Military
Edward W. Edge, Military
Bobby L. Harrell, Celanese Corp.
Henry P. Jewell, Crystal Springs Bleachery
James M. Joiner, Military
Roger N. Kimball, Auburn Hosiery Mills
Carlis E. Kirkpatrick, Pacolet Manufacturing Co.
John V. Linn, Goodyear Tire & Rubber Co.
Charles W. O'Rear, Military
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Hugh I. Shulock, Military
John H. Smallwood, Martha Mills
John E. Thomas, III, Chemstrand Corp.
Thurmond E. Varnum, Mylu Carpet Co.
James Walker, III, Chemstrand Corp.
Robert L. Waugh, Military
Sidney F. Wheeler, Military
Perry R. Young
Jimmy L. Beeland, Military

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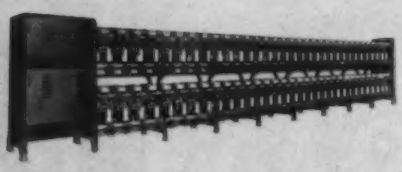

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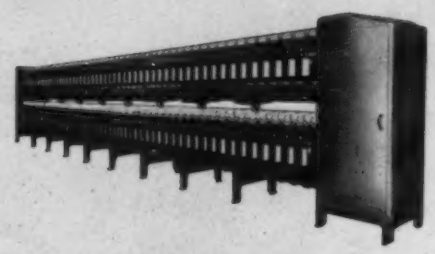

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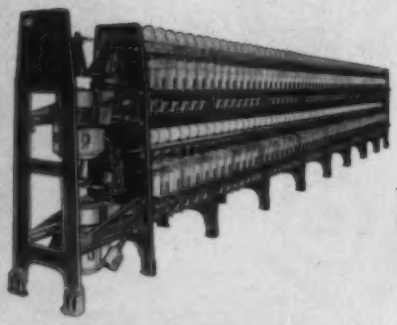

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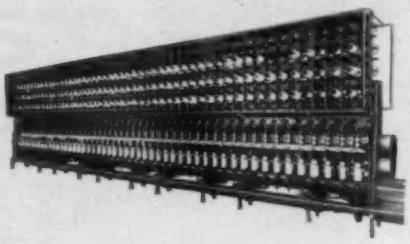

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Victor A. Arrieta
Curtis W. Holland, Military
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Walter G. Abrams, Military
Lesil S. Bomar, Jr., Military
Gultekin Celikiz, Philadelphia Textile Institute
Thomas D. Efland, Clemson College
Albert T. Taylor, Jr., Military
John J. Anderson, Jr., Military

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Richard G. Mansfield, Dow Chemical Co.
Jack O. Middleton, Callaway Mills Co.
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Robert E. Swift, Du Pont
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Michael D. Sands, Military

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Thomas A. Beaty, Military

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Martin D. Bier, Tompton Spinning Mills
Leonard A. Binder, Jack Binder Assoc.
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Carlton C. Butler, Cone Mills Corp.
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Sidney B. Cooke, Cannon Mills Co.
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Francis R. Dunn, Landrum Hosiery Mills
Joyce L. Dutton
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Wm. S. Fisher, Cannon Mills Co.
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Richard Goldenberg, Military
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John A. Knight, Military
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James B. Lewis, Military
Y. D. Li, Kobe, Japan
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John R. McLaughlin, Chatham Mfg. Co.
Joseph J. McNamara, J. P. Stevens & Co.
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Charles R. Niblack, Chemstrand Corp.
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Carl A. Pendley, American Enka Corp.
Ronald G. Perkins, Military
Graham A. Pope, Chemstrand Corp.
Oscar M. Prado, Textilra Mayabeque, S.A.
Kenneth W. Prodo, U. S. Rubber Co.
Henry E. Protzmann, L. P. Muller & Co.
James L. Purvis, Dan River Mills
Max E. Radford, Dan River Mills
K. Rahman
Richard W. Reagan, American Enka Corp.
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Delmer L. Roberts, Textile Machine Works
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Donald J. Rosenbaum, Military
Harvey R. Rudikoff
Henry W. Saffer, Graduate Work—N. C. State College
Herbert C. Schafer, Springs Mills, Inc.
Ernest K. Sherrill, Woodside Mills
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Howard H. Simon, Military
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Howard M. Sprock, Geigy Corp.
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Ernest M. Sternberg, Graduate Work—N. C. State College
Caswell R. Strickland
Robert B. Stuart, Erwin Mills
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William J. B. Tennant, J. P. Stevens & Co.
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Henry C. H. Leung
Kuo C. Woo, Research Staff—N. C. State College
Roger W. Jackle, Research Staff—N. C. State College

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Donald A. Barrow, Graduate study at I.T.T.
Henry C. Briggs, Graduate study at I.T.T.
Francis A. Bromley
Victor E. Collen, Princeton Knitting Mills

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Louis I. Fisher, Fuller Fabrics
Bharat J. Gajjar, Du Pont
Ronald H. Gerber, Military
Surendra K. Goyal, Returning to India
George K. Grassmyer, Ashworth Bros. Co.
Ronald P. Hammer, Owens-Corning Fiberglas
Russell S. Kenin, Dow Chemical Co.
Ronald A. Kershaw, American Hair & Felt
Milton A. Kessler, Hammonton Park Clothes
Donald R. Kew, Orr Felt & Blanket Co.
Mir I. A. Khan, Research Dept., P.T.I.
Jacob D. Korman, Korman Industries (Australia)
Mortimer F. Krane, Princeton Knitting Mills
Raymond M. Levine
Charles R. Lewis
Stanley Lewis, American Cyanamid Co.
Bruce E. Lipman, Crestwood Textiles
Alan Lipschultz
Daniel Mook, Mook Bros., Inc.
Alberto B. Moscona, Alentex, S. A. (Mexico)
Sherwin L. Neugeboren, Clover Knitting Mills
John J. Owens, Jr., Owens-Corning Fiberglas
Julius S. Pasquariello, Puritan Sportswear
Maung S. Pe, Returning to Burma
Gerald Pirato, Jay Co.
Rodolfo Poepsel, Returning to Bolivia
Bernard C. Rosner
Lawrence L. Schachter, Du Pont (Canada)
Irwin L. Schwartz
Guntina Stubis, Du Pont
Man M. Thapar, Returning to India
George H. Thomas, Jr., Burlington Industries
Maung M. Tun, Returning to Burma
Jerrold S. Walker
David Ta-Kwan Wue, Sui Chen Co. (Hong Kong)
Nathaniel Zinman
John J. Conlin, Lockport Felt Co.
Jordon E. Dannin, Graduate study
Gordon K. Empting, Phoenix Dye Works
Imrich Grescaler, Du Pont
Frederick E. Gross, Princeton Knitting Mills
Bruce E. Hand, Cold Spring Bleachery
Edmund G. Lodge, Jr., American Viscose Corp.
Virenchee V. Sagar, Returning to India
Sheldon L. Soskin, Hautman & Leddon Co.
Murray Steinberg
Robert N. Birkenbach, Huntingdon Yarn Co.
Ralph M. Cerame, Wellington Sears
Robert Cohen
Howard S. Danzig, M. Heineman & Co.
Harold Freedman
Paul P. Galindo, Returning to Venezuela
Pablo P. Gonzalez, Fabricato-Medellin (Colombia)
Isaac P. Guberek, Returning to P.T.I.
James J. Kelly, Wellington Sears
Evangelos Kyparissopoulos, Returning to Greece
Allan Lewis
Charles R. Lewis, Interchemical Corp.
Mariono F. Macellaro, Jr., Tioga Weaving Co.
Cesar M. Aguilar, Returning to Mexico
William R. Parry, Tioga Weaving Co.
Harlan P. Parver, Burlington Industries
Na'Man M. Sabbagh, Returning to Syria
David R. Schwarz, Sage Fabrics Co.
Joel Shindermann, Scheuer & Company
Qaisar A. Siddigue, Returning to Pakistan
Donald L. Spangler, Wellington Sears
Thomas A. Taylor, Tioga Weaving Co.
Fedon Tchatchopoulo, Returning to Turkey
William D. Neuman, Robert Bruce Co., Inc.
Martin Slotoroff, Cosmo Knitwear
Jorge Weissenberg, Returning to Guatemala

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Leon E. Therrien, United Merchants and Manufacturers, Inc.
Byron A. Waterman, Jr., Military
James E. Farrington, The Chemstrand Corp.
John J. Feroce, United Merchants and Manufacturers, Inc.
Andrew W. Francis, Jr., Institute of Textile Technology
Alan D. Grover, Institute of Textile Technology
Charles P. Masterson, Belding Corticelli Industries
Necla F. Babacan, D. B. Fuller & Co., Inc.
Kenneth E. Carlson, Advanced Study—Leeds University, England
Naomi B. Danovitch
Joanne L. Egan, Fine Decorators, Inc.
Elnore P. Greenman, Advanced Study, National School of Decorative Arts, Aubusson, France
Cynthia G. Jones, Advanced Study, National School of Decorative Arts, Paris
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Leonard Gaston, U. S. Patent Office
Larry Hopkins, West Mills
Keith Hutson, Du Pont
Sidney Mack, Postex Mills, Inc.

ECOLE DES TEXTILES DE LA PROVINCE DE QUEBEC

Ronald Asselin, Canadian Celanese Ltd.
Maurice Beauchesne, Wabasso Cotton Co., Ltd.
Constantin Bisticas, Canadian Celanese Ltd.
Robert Bousquet, **Dominion Textile Co., Ltd.**
Georges Cote, Dominion Textile Co., Ltd.
Claude deBellefeuille, Ayers Ltd.

Quebec School of Textiles continued

Claude Fontaine, Canadian Celanese Ltd.
Rejean Gervais, Canadian Celanese Ltd.
Andre Girard, Canadian Celanese Ltd.
Reynold Kudrenecky, Wabassa Cotton Co., Ltd.
Jacques Leclerc, Pinatel Piece Dye Works
Norman H. Moore, Courtaulds (Canada) Ltd.
Andre Morin, Johns-Manville Co., Ltd.
Jacques Philie, Canadian Celanese Ltd.
Lucien Pilette, Canadian Industries, Ltd.
James Robinson, Canadian Celanese Ltd.
Gilles Rocque, Dominion Textile Co., Ltd.
Jules Simard, Canadian Celanese Ltd.
Denis St-Pierre, Pinatel Piece Dye Works
Adrien Tremblay, Dominion Textile Co. Ltd.
Alain Turenne, Canadian Celanese Ltd.

Quebec School of Textiles continued

Albert Veillette, Hubbard Felt Co., Ltd.
Jean Oreste Volcy

THE PROVINCIAL INSTITUTE OF TEXTILES

Arthur F. Buckland, Courtaulds (Canada)
Robert A. Dods, Dods Knitting Co.
Paul M. Grosbein, Geigy Co., Ltd.
Aleksandrs Lejnieks, Hamilton Cotton Co.
Lindsay E. Liddle, The Code Felt & Knitting Co., Ltd.
Jerome A. Travers, Eaton Knitting Co., Ltd.
Donald J. J. Walsh, Paton Manufacturing Co.

Woven vs Tufted Carpets

THE FOLLOWING remarks were made recently by Herbert L. Shuttleworth, II, president of Mohasco Industries, Inc., the company formed by the recent merger of Mohawk and Alexander Smith:

"The distinction between weaving and tufting in terms of the nature of the manufacturing process is . . . of less importance in understanding the industry than is the distinction in terms of capital requirements. Woven carpet is made on large, intricate, expensive looms. Their rate of operation is such that quite a number would be needed to produce a volume large enough to be marketed efficiently. Tufted carpet, on the other hand, is made on machines which actually produce carpet at 12 to 15 times the speed of conventional looms.

"A tufting machine with creels can be purchased for about $27,000. Enough looms to produce the same yardage that could be made on one tufting machine would cost about $350,000. An additional $200,000 expenditure would be required for the auxiliary equipment. In short, it takes about half a million dollars more investment in equipment alone to get into woven carpet production on a small scale than it does to start a tufting operation of comparable capacity. If to this amount we add the additional floor area and labor required in weaving, as compared with tufting, the differences become even more substantial.

"It is this relatively high production capacity of the tufting machine and its relatively low initial capital cost that has made possible the entry of new firms into the carpet industry in recent years.

"Numerically, the industry is now dominated by tufted producers. There are only 26 woven carpet manufacturers in the United States, eleven of which have their own tufted lines. But there are about 90 additional concerns that make carpet of only the tufted type. Approximately half of these 90 concerns confine their operations to small scatter rugs and bath mats.

"The rapidity with which this new manufacturing technique—new at least for carpets, but used earlier for bed spreads—developed is evidenced by the yardage figures for rugs and carpets that are 4′ x 6′ or larger in size. Only five years ago, in 1951, industry production of tufted carpet amounted to about 6,000,000 square yards, less than 10 per cent of the total yardage produced. Last year tufted production amounted to about 42,000,000 square yards, equal to about 40 per cent. At the same time that this 36,000,000 square yard increase was taking place in tufting, woven carpet yardage remained constant.

"It is my belief that tufted volume will continue to grow under the stimulus of new techniques and developments. The first tufted carpets were plain, one color products. Patterned effects in one color were introduced about a year ago. In January, Mohawk introduced the first multi-level, multicolored tufted carpet in a design effect. Other developments will follow, which should further promote the growth of tufted volume.

"A very logical question . . . . is what effect this development is going to have on the value of weaving equipment. Will it make the conventional looms and auxiliary equipment obsolete and worthless?

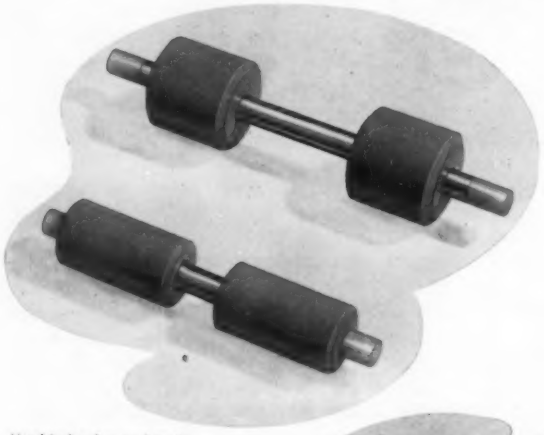
"My belief is that it will not. The rapid growth of tufted production was possible because the product reached a market that conventional woven carpet made of wool had not reached. Tufted carpets were first made of cotton—now they are predominantly carpet rayon. Both fibers are cheaper than wool—both color clearly and brightly—and thus a considerable volume of low-priced, attractive merchandise was made available.

"But tufting still has deficiencies compared with conventional woven carpet. It cannot, for example, produce the clean, well-defined, and multi-colored patterns that are possible with the Axminster weave, which today accounts for 38 per cent of the woven carpet yardage. Neither can it produce the textures and patterns available in a Wilton weave, which today represents 24 per cent of total yardage.

"Most directly affected by tufted products will be the velvet weave, which now accounts for 35 per cent of total woven yardage. But even this weave, I believe, will maintain a substantial volume. The quality of surface finish and the 'feel' that characterize any good woven carpet have not yet been matched by tufted products. I should add too that you can expect to see the woven industry come up with new techniques from time to time which, I'm sure, will continue to attract a substantial number of customers."

ELIMINATE NECESSITY OF LUBRICATING DRAFTING COMPONENTS OF SPINNING AND ROVING FRAMES

Install NEW SACO-LOWELL NYLON GUDGEONS AND INSERTS



Inspect your solid back top rolls, back saddles and tension roll supporting arms. If you detect worn surfaces, these new nylon gudgeons and inserts should be installed as quickly as possible.

Another development of SACO-LOWELL RESEARCH AND ENGINEERING that is continuously at work developing new ways to cut mill operating costs and improve profits. Continued evidence that "It Pays to Use Genuine Saco-Lowell Repair Parts."

Moulded nylon end gudgeons on solid back top rolls. Overall gudgeon diameter remains the same but roll and cap box never require lubrication, nor is there wear at gudgeons.

Adjustable Rulon or nylon bearing blocks in the back saddle. Eliminates wear on roll arbor and need for lubrication at that point.

Tension roll supporting arms reinforced with a semi-circular nylon insert at inner bend of arm. Wear which would affect roll concentricity, alignment of apron and stock quality is eliminated.

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HOW OTHER MEN MANAGE

• Letters to Editor • Technical Discussion •
• Manufacturing Briefs • Kinks & Short Cuts • Comments from Readers •

Write to the Editors!

Readers are invited to make use of this section for further discussion of published articles, or for discussion of problems arising in the plant. Names will not be used without permission. Payment is made for practical articles or for letters containing manufacturing information.

Address: Editor "Textile Industries," 806 Peachtree St., N. E., Atlanta 8, Ga.

A Secondhand Goes Fishing

EDITOR TEXTILE INDUSTRIES:

We carders are a peculiar group of people, having certain views on carding which cause us to be called contrary, stupid, and just plain fools.

Uncounted numbers of technical articles have been written concerning card room machinery, giving us information that is useful in our particular mill. All of this information is good, but there are many small details we are overlooking that have much to do with the basic principles of carding.

Here is a problem in the card room that was caused by the faults in my supervising a card department. Every overseer has a system whether he will admit it or not. Some have systems better than others, but they all have some faults. The most outstanding fault of any system of supervising a group of people is the human element. This element can not be found in a record report of work accomplished. The most often used phrase in the textile industry today is, "I wonder if I can get by with this." Not only is this phrase used by our employees but by us as overseers and executives as well.

The problem was brought to the front because a secondhand in carding wanted to go fishing on Monday. Of all days, why Monday? Well, that was his ambition and he was given Monday off.

I arrived at the mill Monday morning 15 minutes before starting time. Every machine started on time; no one was absent except that secondhand.

Going back to my desk I wondered if that secondhand had caught any fish. Since I was going to be secondhand as well as overseer, I thought I had better get busy. I started in opener room and observed the lay down of cotton—I thought it was a very nice lay down of cotton. Maybe a little too much trash, but with the opening equipment I had I should be able to make a very nice looking lap.

In my routine inspection several times per day I looked for machinery stopped, cleanliness of room, and many other things that go along with safety and fire hazards. Today, Monday, I was a secondhand and overseer—what I found made me think I was a second-handed overseer.

I noticed the opener tender was feeding more from the bales nearest the openers than the rest which were farther away. Where was the box that he was supposed to be using? This box was made to be used by the opener tender so that he could take some from each bale behind one opener. By using this box he would get a small bundle of cotton from seven bales; with five openers you would have a blend of 35 bales at all times.

I found the box in a corner with a wheel off. This was quickly repaired and put back in use. Two of the openers were putting out larger tufts of cotton to the feed table than others. I began to wonder if any speeds or settings had been changed. I asked the opener tender if any of the feeders had given him any trouble lately. He pointed to the two openers that were putting out larger tufts of cotton than the others and said the pulleys that drove the spiked apron had given them some trouble. The section man had gotten two other pulleys which were not the same size, but he had set the doffer farther away from the spiked apron so that it would feed the same amount as the others.

Going to the pickers, I found much the same story: fan speeds changed, mote knives dull and incorrectly set, just a lot of small things that added up to making a poor picker lap.

My biggest surprise came on the examination of the cards. In my routine checks several times a day I always try to talk to all of my employees sometime during the week. I always ask about his or her family—how they were getting along, how was his job going, and the many other things that tend to establish better relations between management and labor.

In examining a card at random I found these same small things that violate the basic principles of good carding, such as mote knives burred and improperly set. One of

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the most neglected duties of a card grinder is the cleaning of the shroud oil-way. This oil-way was designed to take care of the excess oil put in licker-in bearings. To keep this shroud oil-way clean the licker-in pulley and production pulley must be removed. If this is not done you will often notice on each end of your licker-in screen a build up of greasy dirt. You can readily see that is a small detail that can very easily be neglected.

I am mentioning only two of the many things that I found wrong. I know that I would have found the remaining cards just as neglected as this one.

What had happened to my system? I had been lulled to sleep with a false security in a system that did not embrace a more detailed inspection.

I know that the average overseer has many duties to perform besides quality of product, production, and maintenance. All of us are not fortunate in having a quality control department to call to our attention the many small defects that grow into problems.

To control these many things that are being passed over, our supervision will have to embrace more details than heretofore and must be more rigid. Standard speeds must be established from openers through roving and a program inaugurated for the checking of these speeds at specified periods. The reinstruction of grinders should contain more emphasis on small things that become problems.

You may have a system of operating your room which may control all of these things which develop into problems. Anyway, why don't you let your secondhand go fishing? You may be surprised.

CONTRIBUTOR NO. 8893

HOW OTHER MEN MANAGE

Take That Slippage Out of Knitting Yarns

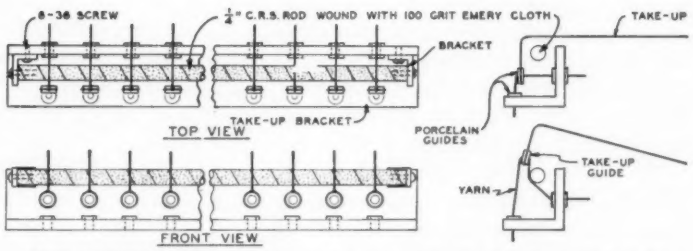
EDITOR TEXTILE INDUSTRIES:

On our knitting machines we have had trouble with yarns creeping off the cones while the yarns were not being knitted. The yarn fingers and yarn take-ups would not keep the idle yarns taut.

We solved the problem by inserting a cold-rolled steel rod, covered with 100 grit emery cloth, above the porcelain guides on the take up bracket. We mounted the rod snugly against the take up bracket by bending some smaller brackets (see drawing) out ⅛" x ½" flat steel, and securing with screws.

With the covered rod in place, the yarns being used are swung downward to a point below the covered rod and are not chafed. When the yarns are idle, the take-ups pull the yarns against the covered rod and the emery supplies the grip needed to keep the yarns taut. We find the installation works especially well on the coarser counts.

CONTRIBUTOR NO. 8868



THE ABOVE illustration shows the emery-covered rod secured to its brackets and mounted on the machine take-up bracket. Yarns do not touch the rod (upper right) while knitting, but are held against it (lower right) while idle.

Is Three Per Cent Variation Between Physical Inventory and Perpetual Inventory Too Great?

EDITOR TEXTILE INDUSTRIES:

In our mill, all departments keep their perpetual inventory system on their daily usage of raw materials and products. At the end of each month, we also make a physical stock taking. But the result usually shows that the difference between our daily record and the monthly check-up is too big, not counting over the invisible loss that we should have in every department.

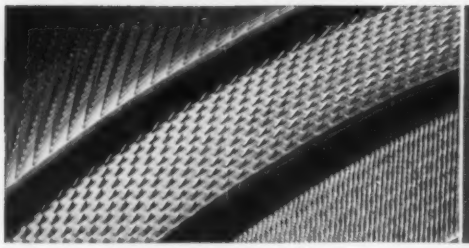
The percentage of loss found in the card and drawing rooms comes up to 3%. We wonder if this is similar to the usual circumstances in the textile industry.

CONTRIBUTOR NO. 8877

(Referred to sources of information. Three replies are printed below. Further contributions are invited.—Eds.)

EDITOR TEXTILE INDUSTRIES:

We would say that if the perpetual inventory records and monthly physical inventory of raw materials ran with no more than a 3% difference you would be doing very well. Frankly, ours runs a little higher than 3% and we



Ashworth Tips ON CARDING

No. 32 in a Series

FILLET CLOTHING *vs.* PLUGS AND TACKS

Unfortunately in many instances little or no attention has ever been given to the importance of using the correct plugs and tacks when applying fillet clothing.

All card cylinders and doffers are taper drilled; and unfortunately, no standards as to hole size and degree of taper were ever adopted for any prolonged period.

It is to your best interests to make a study of this and have on file, available for ready reference, the complete history on size and taper of plugs required for the cards in your mill. When ordering replacements, establish a practice of sending samples and then double checking on receipt of the shipment to be certain that you received plugs exactly to your sample.

Prior to applying new fillet clothing, plugs should be carefully inspected on both cylinders and doffers, and those that are oil soaked or damaged in any way should be drilled out and replaced with new plugs. Shoe pegs should be driven in the tack holes of the plugs that are left in.

On the various models of card produced by Saco-Lowell Shops, beginning with the old Pettee Machine Works and carrying through to their 1956 models, you will find various sizes of plugs; and even on some models, the holes on the selvages of the cylinders will differ from the holes in the cross rows, necessitating the use of two sizes of plugs on the same cylinder. On still other models, solid plugs are used. So in the case of old and new cards produced by the present Saco-Lowell Shops, it is almost imperative that samples be submitted. The Whitin card uses a special size plug, the H. & B. a special size doffer plug.

When replacing plugs on either edge of cylinders, be certain that the part that projects beyond the cylinder thickness is cut off flush with the under side of the cast iron cylinder. If such plugs are left uncut, you will soon have a raised fillet due to chokes in the sides of the cards knocking these plugs up.

It is also vitally important to use the correct size of tacks on both cylinder fillets and doffer fillets. These are more or less standard items with the card clothing manufacturers. The diameter of the head and length of leg are designed particularly for use with fillet card clothing; and tacks of the correct specifications can only be obtained from card clothing manufacturers.

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American Card Clothing Co. (Woolen Division)

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Ashworth PIONEERS IN CARD CLOTHING

3 FACTORIES • • • 6 REPAIR SHOPS • • • 7 DISTRIBUTING POINTS

would be more than satisfied if we could keep within this amount.

CONTRIBUTOR No. 8878

EDITOR TEXTILE INDUSTRIES:

We take an actual count of our cotton and rayon and other raw materials inventory each year, and for the entire organization, which consumes approximately 180,000 bales of cotton, we have never been over or under our inventory by more than fifteen bales. However, we go to considerable expense in keeping our records and reporting cotton open for stock and process.

The 3% mentioned would be entirely out of reason for any one of our plants.

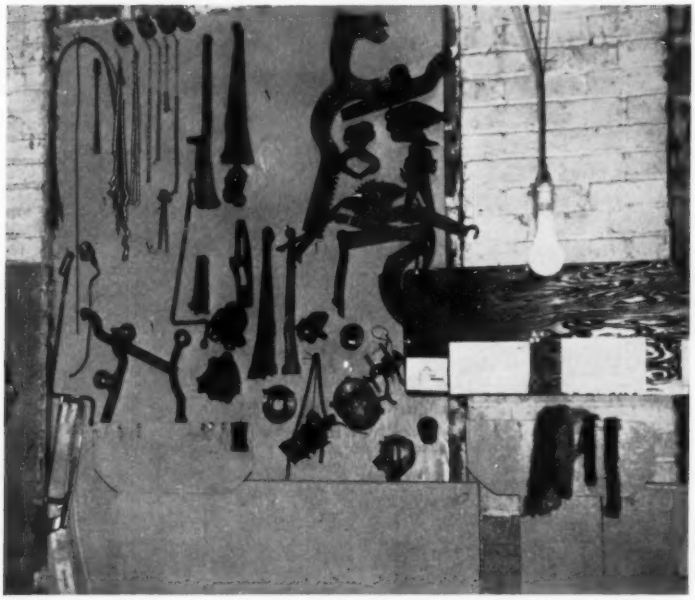
CONTRIBUTOR No. 8880

EDITOR TEXTILE INDUSTRIES:

We assume that this would be only cotton. We make a physical inventory only once a year at which time we find a variation of perhaps six to ten bales or about 0.02% of the approximately 40,000 bales we use annually.

CONTRIBUTOR No. 8879

Display Board in Lieu of Storage Cabinets



EDITOR TEXTILE INDUSTRIES:

In our small plant we do not employ a full-time supply room clerk. The weave room is on the floor below the supply room, and we found it convenient to allow the weave room foreman to unlock the supply room and issue supplies to our loom fixers, who, in turn, kept them in individual cabinets.

The supply cabinets were usually in such a state of disorder that the fixers spent much time looking for parts in their own cabinets. We solved that problem by mounting a 4′ x 6′ board, painted gray, on the wall behind the workbench. On the board we hang the loom parts which the fixers are most likely to need. The foreman keeps the board replenished.

An additional aid is in the "bulletin" board we placed alongside the supply board, for recording loom settings, customer complaints, and other items of information for our fixers.

CONTRIBUTOR No. 8873

HOW OTHER MEN MANAGE

Nylon Knits Better With No Tension

EDITOR TEXTILE INDUSTRIES:

For years I tried various amounts of tension on nylon knitting yarns on latch-needle machines. Finally I cut the tension to an absolute minimum by not threading the stop motion.

My present method of threading is to pass the yarn to the eye directly over the cone, over the ring that the eye is fastened in, then down to the eye in the guide. My yarns knit better.

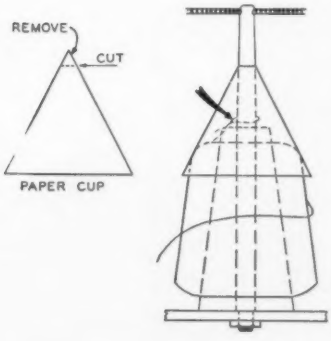
CONTRIBUTOR No. 8882

Stop Swirling on Jumbo Cones

EDITOR TEXTILE INDUSTRIES:

One of the difficulties of running knitting yarn from suspended jumbo cones is the tendency for the yarn to swirl over the top of the cone and hang (arrow).

This can be overcome by clip-

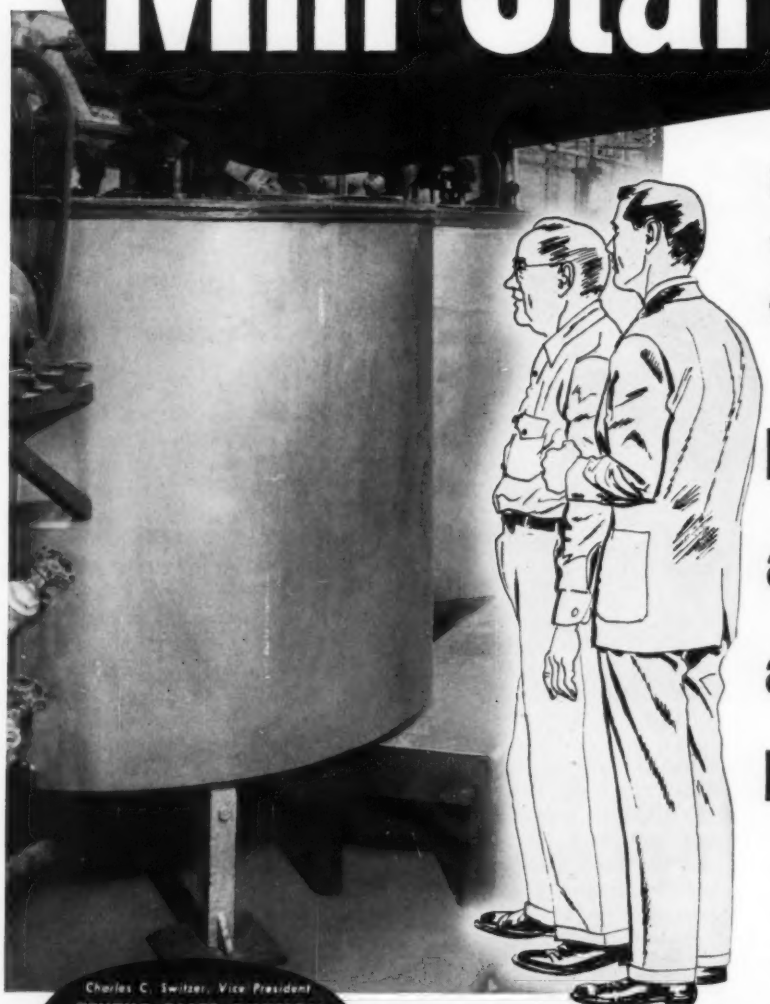


ping the tip from triangular paper cups (of 4″ width) and sliding one on each shaft so it rests upon the shoulder of the yarn.

CONTRIBUTOR No. 8881

VICTOR
Mill Starch

A KEESTAR PRODUCT



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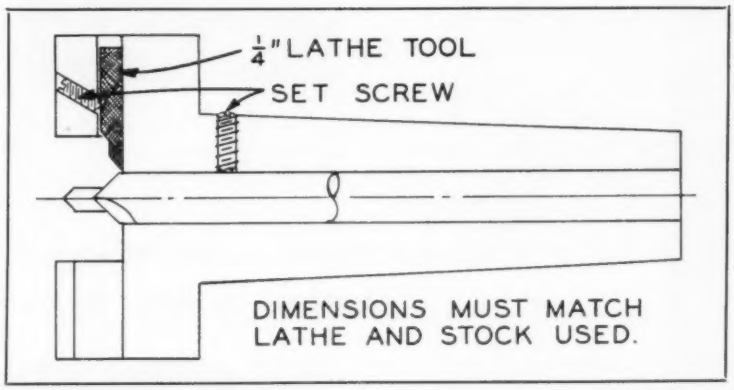
Lathe Tail Stock Holder Saves 8 Hours on One Job

EDITOR TEXTILE INDUSTRIES:

A "tailor-made" lathe tail stock holder reduces the number of operations usually required in the production of studs, collars, sleeves, mandrels, and similar items.

This tool combines facing, centering, and radii cutting in one operation instead of doing the three operations singly in the usual way.

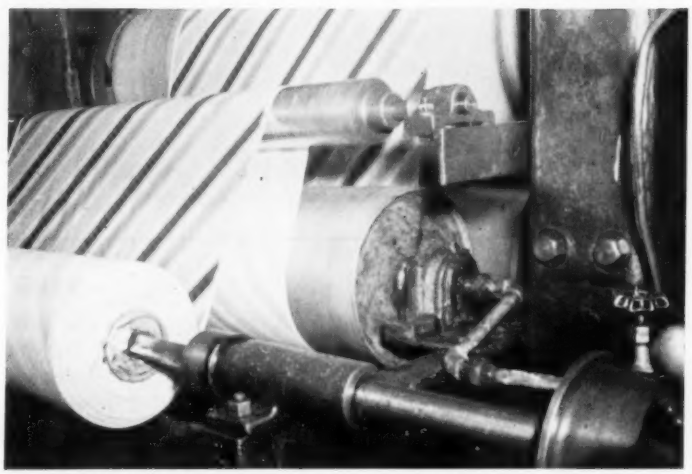
One job called for machining lifter rods for twenty-four twister frames—a total of 576 rods. The time saved per twister by using this special tool amounted to 20 minutes; the time saved for the complete job totalled eight hours. The tool was made in the mill shop (see accompanying drawing) and eliminates the necessity of moving tail stock and compound rest back and forth.



TOOL HOLDER shown with the cutting edges in place for both outside and inside cutting.

CONTRIBUTOR No. 8865

Cooling Can on Calender Permits Continuous Finishing



JUST BEFORE delivery from the hydraulic calender shown in the accompanying photograph, cloth passes beneath a water-cooled roll. This permits further movement of goods in the plant without it being necessary for them to stand overnight to cool, with the accompanying danger of losing the finish.

Besides hydraulic calenders, friction and schreiner calenders are also equipped with the cooling cans. Idea illustrated courtesy Arnold Plant, USF-Aspinook Finishing Division of Gera Corp., Adams, Mass.—*Staff.*

How to Get 2½ ppi on XD Looms

EDITOR TEXTILE INDUSTRIES:

In a previous article (TEXTILE INDUSTRIES, July 1955, p 139) you published a kink of mine in which I had converted the pick motion of an XD loom to give three picks per inch. We ran the loom for a year and in that time we replaced the pick wheel shaft and dog arm three times. The excessive motion wore them out.

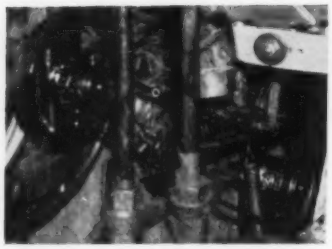
The customer who wanted the three-pick goods now wants a heavier filling in the fabric. To hold the weight we were producing in the previous fabric, we now must insert 2½ picks. Of course that would mean even more wear in the pick wheel shaft and dog arm than we formerly experienced.

We devised the following motion to give us a continuous take-up without excessive wear. The motion is simplicity itself.

We installed a sand roll sprocket gear on the pick gear shaft after removing the gears and dogs. The

sprocket gear fits the pick shaft perfectly, and is held on with set screws.

Since our weave is a four-harness leno we don't need to turn the dobby chain barrel. So we made a long chain to reach from the dobby



drive sprocket to the sprocket gear on the pick gear shaft. This enables us to drive the pick shaft directly from the crankshaft.

The combination of gears we had on hand gave us the exact pickage we needed. Since there are no ratchet motions involved, we get the 2½ picks per inch without having to check constantly for faulty picking.

Altering the pick is as simple as changing the pinion gear or one of the sprockets. We plan to adopt the system for all looms producing goods of 10 picks or less.

CONTRIBUTOR No. 8884

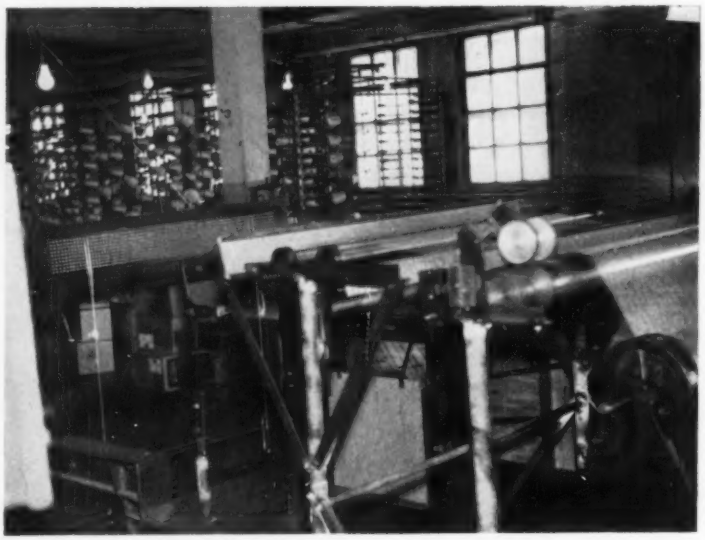
Change Horizontal Warper to Warp Section Beams Directly

EDITOR TEXTILE INDUSTRIES:

We converted a horizontal warper to a section beamer to allow us to do a better and faster slashing job on singles yarn for a very lightweight fabric. The original warper had forced us to do beam-to-beam slashing.

By removing the reel, mounting a yardage clock on the delivery roll, and installing a stop motion (borrowed from a loom) we now are able to draw yarn from the creel and wind it onto section beams in a continuous operation. The accompanying photograph shows the basic changes we made, and gives a close-up of three steel rolls we mounted in ball bearings to give us added yarn control.

CONTRIBUTOR No. 8872



$100 HURRY! HURRY HURRY! **$100**

Kink Contest Closes August 15, 1956. Send Your Entry Now!

Every kink, short-cut, time-saver, or quality improvement suggestion entered in the contest will be paid for immediately upon acceptance. The $100 award will be made as soon as all entries are judged.

The contest rules are simple:

► All contributions must be postmarked not later than midnight, August 15, 1956.

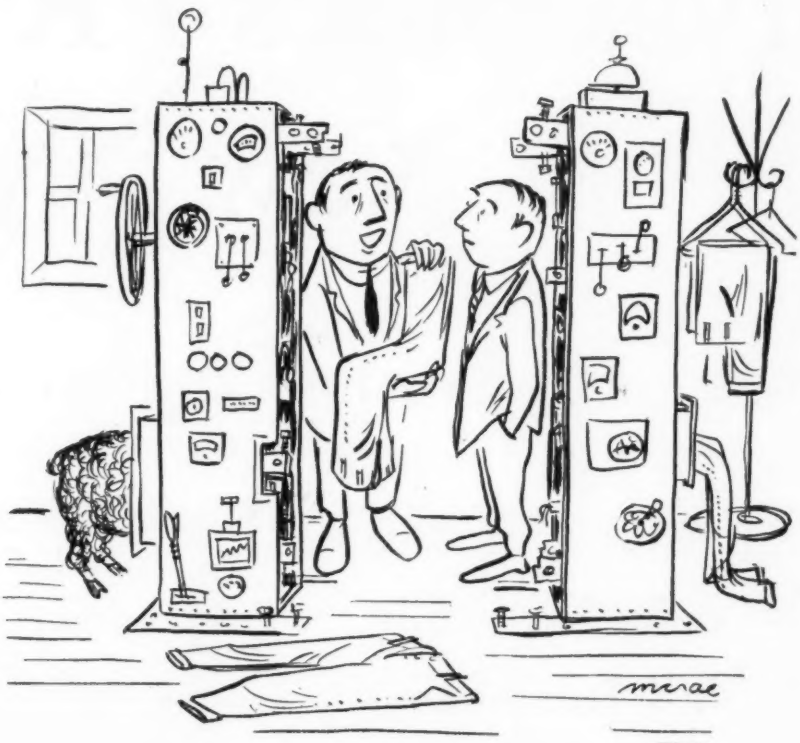
► No limit to the number of entries an individual may submit in any one contest.

► All entries paid for upon acceptance — no waiting. Extra payment for photographs that are usable. Extra consideration is also given kinks accompanied by legible pencil sketches or drawings.

► Entries must not have been published previously and must not be submitted to any other publication.

Send your contest entry to:

Editor TEXTILE INDUSTRIES
806 Peachtree St., N. E., Atlanta 8, Georgia.



"Si has a revolutionary machine here, if he can only figure out the middle part . . ."

This often happens to our ideas, too. But we don't give up easy. The SEYCO lab often pulls thru with the answer to a problem that looks almost this tough. Witness our full line of first-rate textile chemical auxiliaries and our reputation for mill service second to none.

Let SEYCO take a crack at those tough problems of yours.

Warp Sizing: *Softeners, Binders, Penetrants, Ty-In Penetrants, Shuttle Dressing, Waxes.*

Wet Processing Chemicals and Auxiliaries: *Dye Assistants, Penetrants, Rewetting Agents, Sanforized Fabric Oils, Detergents, Scouring Agents, Softeners.*

Niagara Twist-Setter: *Yarn Conditioning Penetrants.*

Seyco Warp Lubricator.

Headquarters for textile chemicals

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SEYCO

Chrysler uses I·R·C's New Nylon

to make floor coverings and upholstery

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Because even a *small* percentage of The New Nylon, in automotive fabrics, gives wear advantages out of all proportion to the amount used. It means longer wear... it means greater crush resistance... it means less matting... it means higher abrasion resistance... based on comprehensive laboratory and practical test methods applicable to the automotive industry.

If you're making blends, or 100% nylon fabrics, look into the big advantages offered by The New Nylon Staple!

More Resiliency with less Crushability • Greater Strength
Better Luster • Better Crimp • Lower Dye Costs
Greater Resistance to Abrasion • New Economy

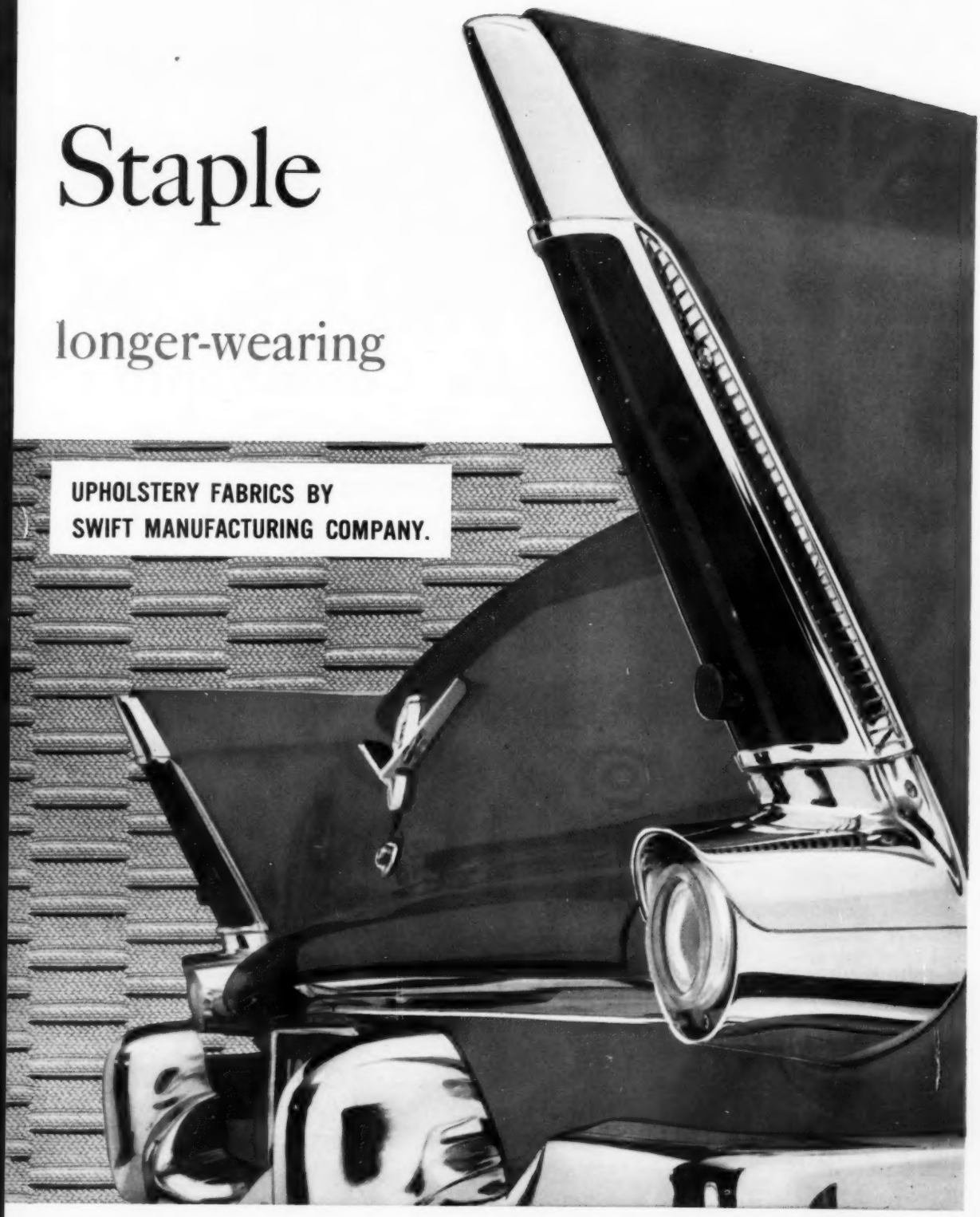
THE NEW Nylon Staple I·R·C

INDUSTRIAL RAYON CORPORATION

Sales Offices: 500 Fifth Avenue, New York 36, N.Y. • 627 Guilford Bldg., Greensboro, N. C.

Staple

longer-wearing



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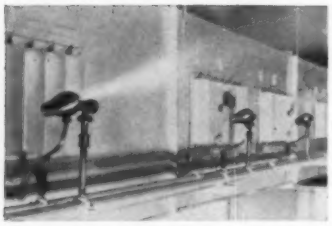
Central Station Air Conditioning

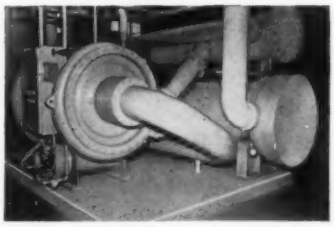
When you buy Parks-Cramer Central Station Air Conditioning you buy

- ✓ A system based on 52 years' experience in designing, manufacturing and installing air conditioning and humidification for textile mills.
- ✓ One or more central air washer units of superior performance and longevity. Here air is cooled or heated, humidified or dehumidified, washed and otherwise purified depending upon requirements. Refrigeration and electrostatic filters included when needed.
- ✓ Uniform air distribution to every department of the mill under close, reliable automatic control.



Gradumatic humidifiers are used at duct outlets where conditions dictate. Fine spray and automatically varied evaporative output make Gradumatics ideal.

Rotary tank screen filters water before it is pumped to spray nozzles. Performance of washer improved, maintenance greatly reduced.



Standard refrigerating equipment selected and engineered to suit each individual installation. Trane CenTraVac here illustrated.

Certified Climate Psychrostat for zone control of room conditions.

Rugged, simple, dependable.

Parks-Cramer Company

Certified Climate Systems since 1904

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403

Knitting Section

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top to toe

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FOR DEPENDABLE, UNIFORM
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Beautiful, full-color unions between welt and boot are easy to obtain with VIBRATOL. This safe, sure, dependable dyeing assistant and leveling agent levels out color tones between multi-filament and the mono-filament as nothing else can!

VIBRATOL increases production, helps banish rejects . . . makes hosiery more appealing in the box . . . gives more satisfaction to the consumer.

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starts with the machine

Strength . . . Out of This World!

For strength and stamina to meet the challenge of high-speed knitting machines, it pays to standardize on Textile Spring-Beard Needles, flat stock and leaded assemblies. Better fabrics at lower production costs demand needles that never vary — in size, shape, toughness, hardness, or flexibility. For day-in, day-out dependability . . . for less down-time and more profit . . . put Textile Spring-Beard Needles to work in your machines.

Textile SPRING-BEARD NEEDLES

Wire Products Division
TEXTILE MACHINE WORKS • READING • PENNA.
In the South: Asheboro, N.C. In the North: Manchester, N.H.
Builders of Textile Machinery Since 1900

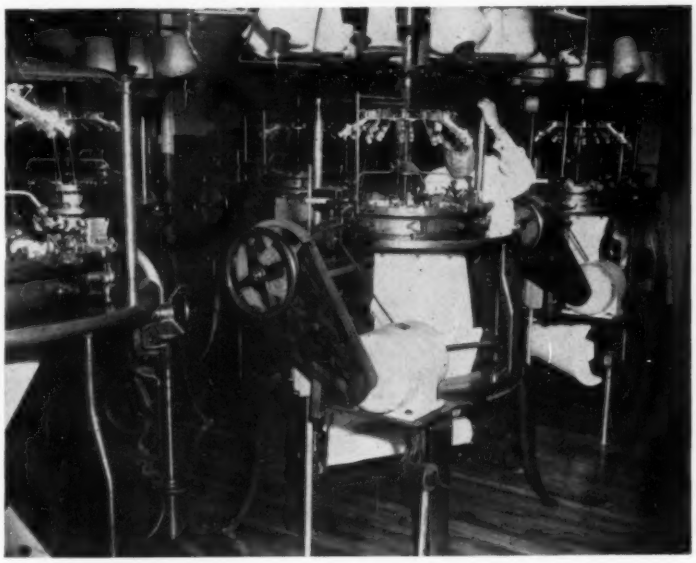
Drive Changeover Gives New Life to Circular Machines

STAFF PREPARED

EXCLUSIVE

THE CORNUCOPIA Corporation, Belmont, N. C., upon moving into new quarters, was faced with the need for relocating 31 jersey and rib knitting machines and drive mechanisms for these machines. In making the change to new quarters, the management had to move all of the line shafting for driving most of the machines or to substitute some other drive arrangement.

After ten years of experience with line shaft drives, the management ruled these out entirely in favor of individual motor drives for each machine. The mill had operated eight machines equipped with individual motor drives for several years, and the merits were carefully compared to line shaft drive on the other machines. 23 machines were converted to individual motor drive.



DRIVE CHANGEOVER to individual motor drive brought improvement in machine efficiency, better quality work, and cleaner, quieter, safer knitting room.

Results. Now, an improvement in machine efficiency is evident, and all of the machines produce better quality work because machine speeds are kept constant by the individual motor drives. The entire knitting area is a cleaner, quieter, and safer place to work, thereby improving employee morale as well as reducing the amount of dirty cloth produced.

The individual electric motor drives were installed on older machines, including spring needle and latch needle models. A long range competitive view with a reduction in seconds, better quality fabrics, higher production, and lower cost of machine maintenance for the long run were among the reasons for changing to the new drives, according to management officials at this plant. Spring needle machines include 19″, 20″, and 21″, sizes running 28-cut goods. Yarns used range from 26s to 40s single.

Formerly, two men were required when service was needed on the line shafts; these men performed other duties when not working on the shafts. Service on the line shafts had to be performed from a ladder or elevated position, since the shaft was suspended from the ceiling, thereby constituting a hazard.

Now, one person can attend to lubrication of the drive mechanism. The only lubrication required regularly is greasing the clutch as needed. The electric motors are sealed, and the manufacturer recommends lubrication once a year.

The knitting area is now much easier to keep clean and free from lint, dirt, and obstructions. The range of goods made in this plant includes jersey and rib knit cottons and synthetics for underwear and outerwear, and fabrics for the plastic coating trade.

The Drives. The drives used in this instance were tailored for the application and required the following components: 1½-hp electric motors (220 volts, 1150 rpm), clutch, clutch levers, longer drive

ARTICLES IN THIS SECTION

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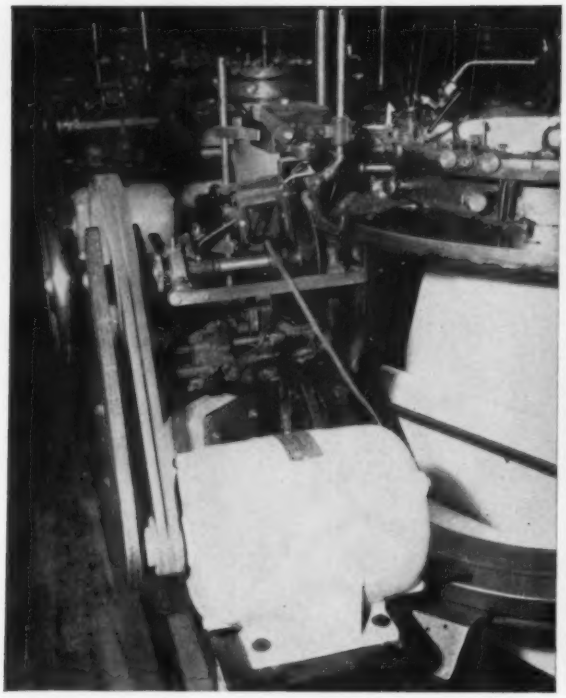
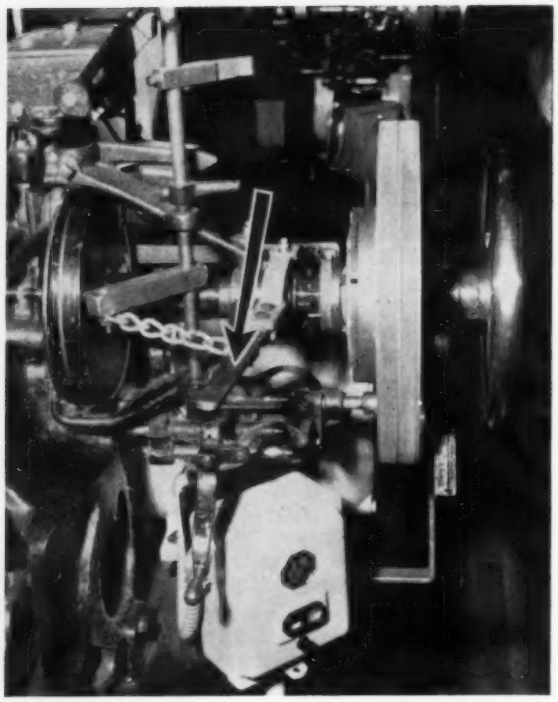
Consider Using "Disappearing" Yarns 169

See also "A Primer for New Supervisors" (p. 106), "How We Dye Stretch Yarn Fabrics (p. 114), Executive Section (pp. 73-87), and New Equipment Parade (pp. 171-184).



SMOOTH SURFACE and motor housing contours are lint-free. Note V-belt drive and wood guard for safety.



CLUTCH LEVER (see arrow) and linkage to stop motion are visible in this view of the changeover.

shaft, motor supports, sheaves, and V-belts. Motors were supplied by Electra Motors, Inc., Anaheim, California. Clutches were made by Edgemont Machine Co., Dayton, Ohio.

The clutch mechanism was adapted to the electric stop motions so that the clutch is disengaged upon actuation of the stop motion. This arrangement stops the machine but not the motor.

The power supply is fixed to provide a switch to control the electric current to each motor. Also, a starter switch is provided on each machine. This permits interrupting the circuit to each machine should it become necessary to work on the motors, which are mounted off the floor.

The new drives were put into operation about the first of December, 1955, have given no trouble to date, and have fully measured up to expectations, according to mill officials at Cornucopia.

Hosiery Manufacturers Reminded of Anti-Trust Laws

BECAUSE there is some indication of an increasing interest by the Federal Trade Commission in the soft goods field, Frank H. Twyefort, counsel for the National Association of Hosiery Manufacturers, was asked to refresh the memory of those attending the 19th Hosiery Industry Conference regarding the provisions of the anti-trust laws.

Following is an extract of Mr. Twyefort's remarks:

"The statutes include the so-called Sherman Act, passed 60 years ago; the Clayton Act, enacted 42 years ago; plus an amendment to the latter adopted 20 years ago, commonly known as the Robinson-Patman Act.

"The general purport of these anti-trust laws is to preserve competition in business. To that end monopolies are banned; discrimination between customers as to prices, services or facilities is prohibited; and penalties are imposed for violation of the law. In other words, the rule of thumb is that a manufacturer shall treat all competing customers in a proportionally equal manner.

"An illustration of this rule in the field of advertising is found in the comments of last December in the notes to the Federal Trade Commission's Trade Practice Rules for the Corset, Brassiere and Allied Products Industry. These comments are:

> " 'Industry members giving advertising allowances to competing customers must exercise precaution and diligence in seeing that all of such allowances are used in accordance with the terms of their offers. When an industry member gives allowances to competing customers for advertising in a newspaper

or periodical, the fact that a lower advertising rate for equivalent space is available to one or more, but not all, such customers, is not to be regarded by the industry member as warranting the retention by such customer or customers of any portion of the allowance for his or their personal use or benefit.'

Roughly stated this means that if a manufacturer offers to pay one customer 50% of the cost of an advertisement he must make that per cent available to all competing customers; and that such 50% shall be 50% of the actual cost and not 50% of some arbitrary amount fixed by the customer. It also means that the manufacturer is charged with the responsibility of seeing to it that these requirements are observed. . . .

"There are other provisions in the law equally binding upon manufacturers.

"For instance, section 3 of the Robinson-Patman Act makes it unlawful to be a party to any transaction of sale which discriminates to one's knowledge against competitors of the purchaser by reason of grant of any discount, rebate, allowance or advertising service charge not available to such competitors in respect of a sale of goods of like grade, quality or quantity; or to be a party to any transaction to sell goods at prices lower than exacted elsewhere for the purpose of destroying competition or eliminating a competitor; or to be a party to a transaction to sell goods at unreasonably low prices for the purpose of destroying competition or eliminating a competitor.

"Since its enactment little activity to enforce the Robinson-Patman Act has been seen in the soft goods field. It would be a mistake for manufacturers to consider, therefore, that the law does not apply to them. The law has equal force in all business areas, and all manufacturers should understand that violation may lead to difficulties with the Federal Trade Commission or with customers who may be injured or offended or with the Attorney General."

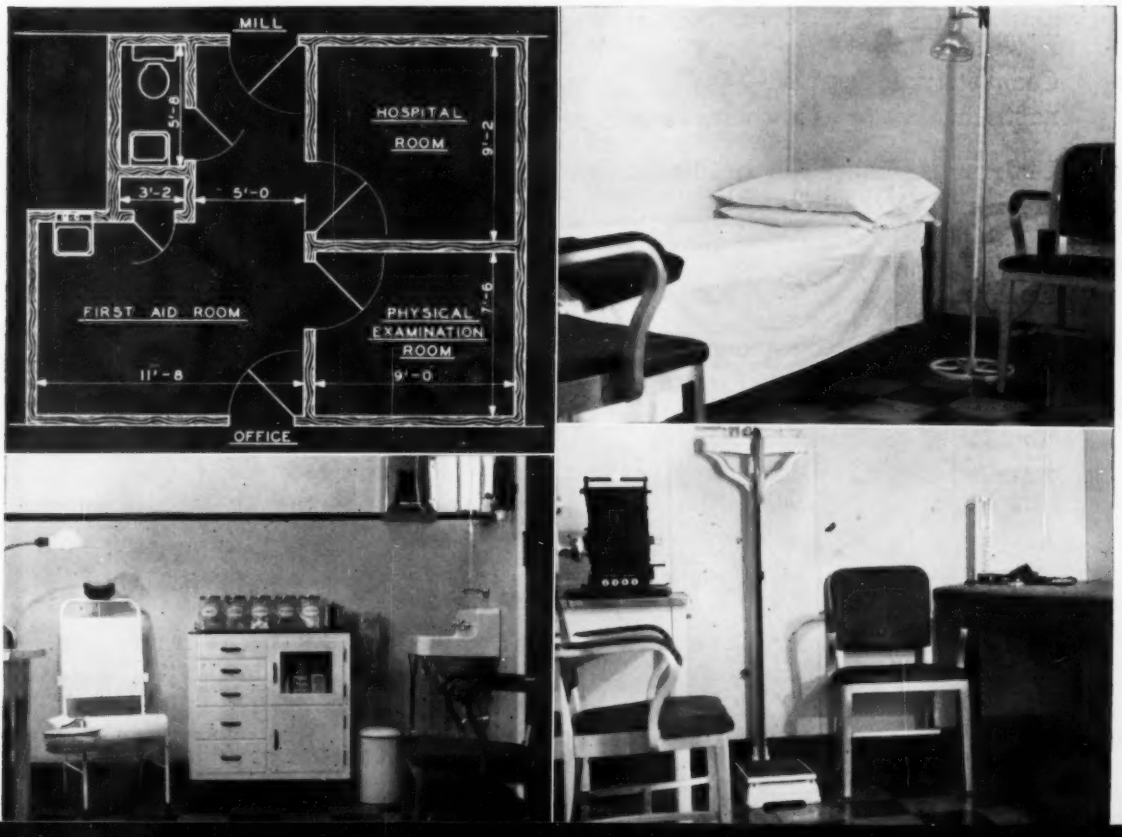
A Medical Program for the Small Knitting Mill

BY S. BENTON DAVIS

EXCLUSIVE

UNDER TODAY'S conditions of rapid turnover and absenteeism among employees it behooves management to utilize all of the techniques possible to maintain a steady flow of work from a stable work force. One of the factors which can contribute greatly to a solution of the problems of turnover and absenteeism is a medical program which serves employees on an emergency basis and at the same time counsels them so that

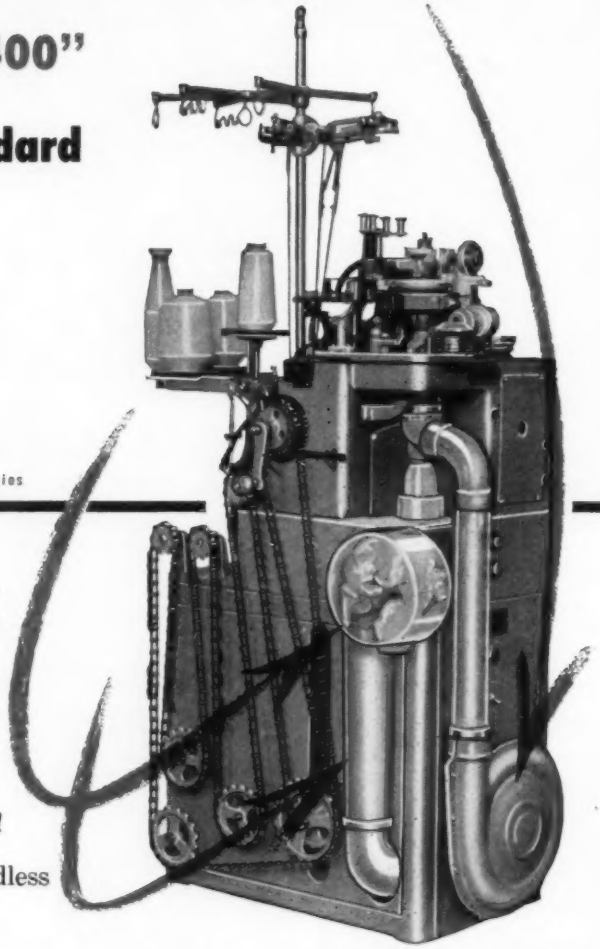
FLOOR PLAN OF MEDICAL AREA (upper left). Photos show hospital room (upper right), first-aid room (lower left), and physical examination room (lower right).



THIS NEW AUTOMATIC TENSION DEVICE*

on the FIDELITY "400" Sets the New Standard in Seamfree Stocking Quality!

*Patents Pending in United States and all Foreign Countries



Compare the unique features of the revolutionary new Fidelity Automatic Tension Device:

- Installation *does not* increase machine height!
- Completely air-operated—no mechanical arms or contrivances!
- Uniform tension is maintained regardless of knitting speed!
- Requires no resetting if machine is hand racked!
- Nylon retainer on transparent receptacle assures no-snag removal of stockings!
- Totally self-contained unit—easily installed without auxiliary air inlets!

Compare—then decide to meet the *new* standard of production quality *now*, with the superior new Fidelity Automatic Tension Device . . . designed for use with the electronically controlled Fidelity "400" and other makes of knitting machines. Write today for details . . . or visit our showrooms.

Designers and Builders of Intricate, Automatic Precision Machines

SINCE 1911

FIDELITY MACHINE COMPANY, INC.

3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

EXPORT DEPT.: 25 BEAVER STREET, NEW YORK 4, N.Y.

SOUTHERN SALES OFFICE: 607 PROVIDENT BUILDING, CHATTANOOGA, TENNESSEE

their work habits can be improved.

Unfortunately a medical program can oftentimes become so burdensome from a cost standpoint that it is prohibitive for the small organization. Yet a part time medical program can frequently be set up which will supply the desired values and at the same time stay within the budgetary limits normally allocated to this function.

Objectives of a Medical Program. Several years ago such a program was established in a small mill employing approximately 500 people. Three major objectives were in view in establishing this program:

1. To provide for employees a daily consultative service.
2. To provide biennial physical examinations for all employees.
3. To give pre-employment physical examinations to all new operatives.

Under these objectives there would also be such concomitant benefits as:

1. A closer review and control of the company-sponsored insurance program.
2. A supervised first aid program in the plant.
3. Medical service on an "on-call" basis for emergencies.
4. Possibly most important, an improved relationship between the employer and employees.

Securing Medical Personnel. With these objectives established and carefully documented, together with a description of the total program, the employer began a search for the medical talent necessary to carry out the program. Naturally this must be on a part-time basis, and the employer was fortunate enough to find a physician who was doing a surgical practice and serving as consultant for a full-time medical program in a large local manufacturing establishment.

Since this physician also had in his office a nurse who was fully qualified from an industrial nursing standpoint, a schedule was worked out for the physician to call at the plant two days per week in order to provide pre-employment physicals and/or routine physical examinations of current employees. The nurse would be available on the remaining days of the week during a half-hour period each afternoon, and would make a spot call at the plant each morning to take care of any minor problems which might have developed among employees coming to work on the day shift or held over from the night shift operation.

Housing the Program. Fortunately, at that time the employer was rebuilding his office area, and a space was found for the first aid and medical program which was readily accessible from both the general offices and the factory area.

This area is shown in the accompanying illustrations, and is comprised of three rooms: a general treatment room, a hospital room, and an examination room. In case of emergency, the examination room can also be used as a hospital room for employees who are temporarily incapacitated and must lie down. In addition there is a small toilet included in the area.

The physician prepared a list of equipment and supplies necessary for a program of this nature; these were purchased by the employer and placed in the area. This equipment included such things as a treatment chair, treatment table, storage cabinets, sterilizer, bed, heat lamp, etc.

Supplies were also purchased. These were of two types:

1. Those available for use only by the physician or nurse.
2. Those also for use by first-aid people.

Standard treatment instructions were prepared and posted, and all supplies in the first category were placed in a locked cabinet, along with surplus stocks in the second category.

Getting the Medical Program Started. In order to initiate the program, a meeting of all supervisory personnel was called, and the physician in charge of the program explained to them the limits of the treatment which would be available, making it understood that the company's plan was to provide only emergency service, together with the planned physical examinations; and that any treatment of conditions found in these examinations or following emergency care would necessarily have to be taken care of by the employees' personal physicians.

Following this, a similar meeting was held with members of the bargaining unit, in order that they also might understand all implications of the program. It was particularly emphasized in this latter meeting that the company's objective was to provide a service to employees.

First-aid personnel were selected from various departments and the nurse gave them a short course in first aid to be used "until the doctor gets there." This resolved itself into the simplest of instructions, since it was management's intention to utilize the professional service as much as possible in order to attain the maximum in improved relationship.

Once the program was under way it gained wide acceptance in the organization and has continued as a satisfactory approach to the problem of providing a medical service on a part-time basis to employees.

WANT SOME EASY MONEY?

You do? Well, then, here's one way to get it. Sit down right now and prepare an entry for TI's Kink Contest. Your kink or short cut will be paid for immediately upon acceptance — no waiting for the contest to close. Should it be declared the winner, an additional $100 will be sent to you. For complete details, see page 152.

☆ ORLON ☆ NYLON ☆ ACRILAN ☆ DYNEL ☆

DEEP PILE IS BIG BUSINESS

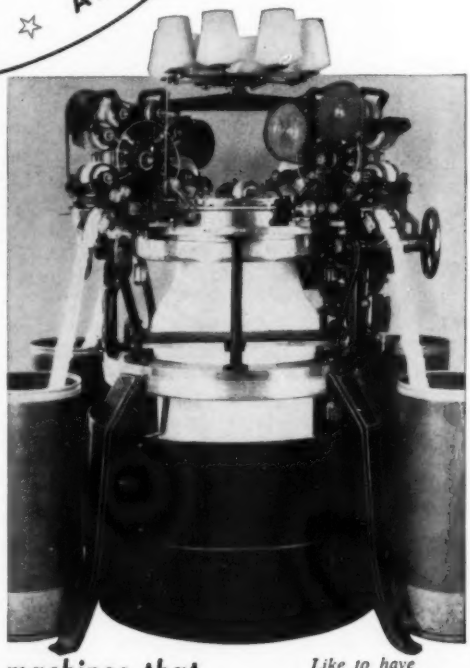
☆ COMBINATION WITH NATURAL FIBERS ☆ ALL SYNTHETIC FIBERS ☆

From season to season . . . year to year, these lustrous, deep, lush, kitten-soft, fur-like fabrics are getting the nod from style-wise American women in greater and greater numbers.

And womens' style centers are receiving the benefit in prestige and profits. This is a "must market" and a rapidly expanding one. Get your share with a battery of

WILDMAN HIGH PILE FABRIC KNITTING MACHINES—TAKING ANY TYPE AND SIZE OF STAPLE—

in all synthetics, separately or mixed, or in combination with natural fibers. The advantages built into these modern knitters are all in your favor — dependable, all day, trouble-free production with assured uniformity yard for yard.



WILDMAN *makes the machines that tend to their own knitting.*

WILDMAN MFG. COMPANY, NORRISTOWN, PA.

Like to have complete technical details and demonstration?

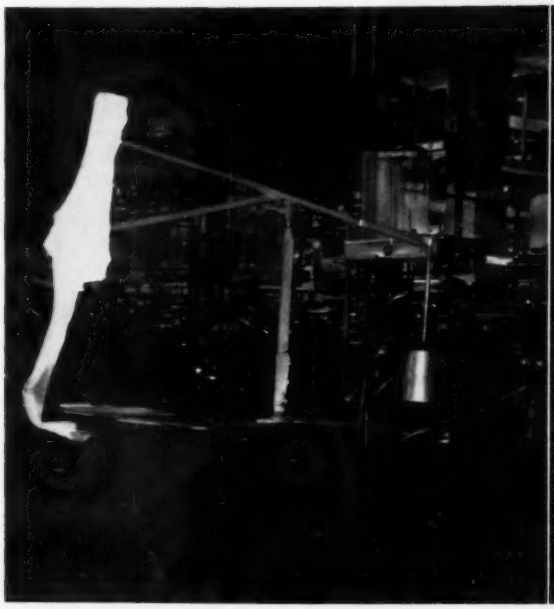
Manufacturers of: FULL FASHIONED HOSIERY MACHINES; CIRCULAR MACHINES FOR OUTERWEAR, UNDERWEAR, SPORTSWEAR, TRIMMINGS; STOP MOTIONS

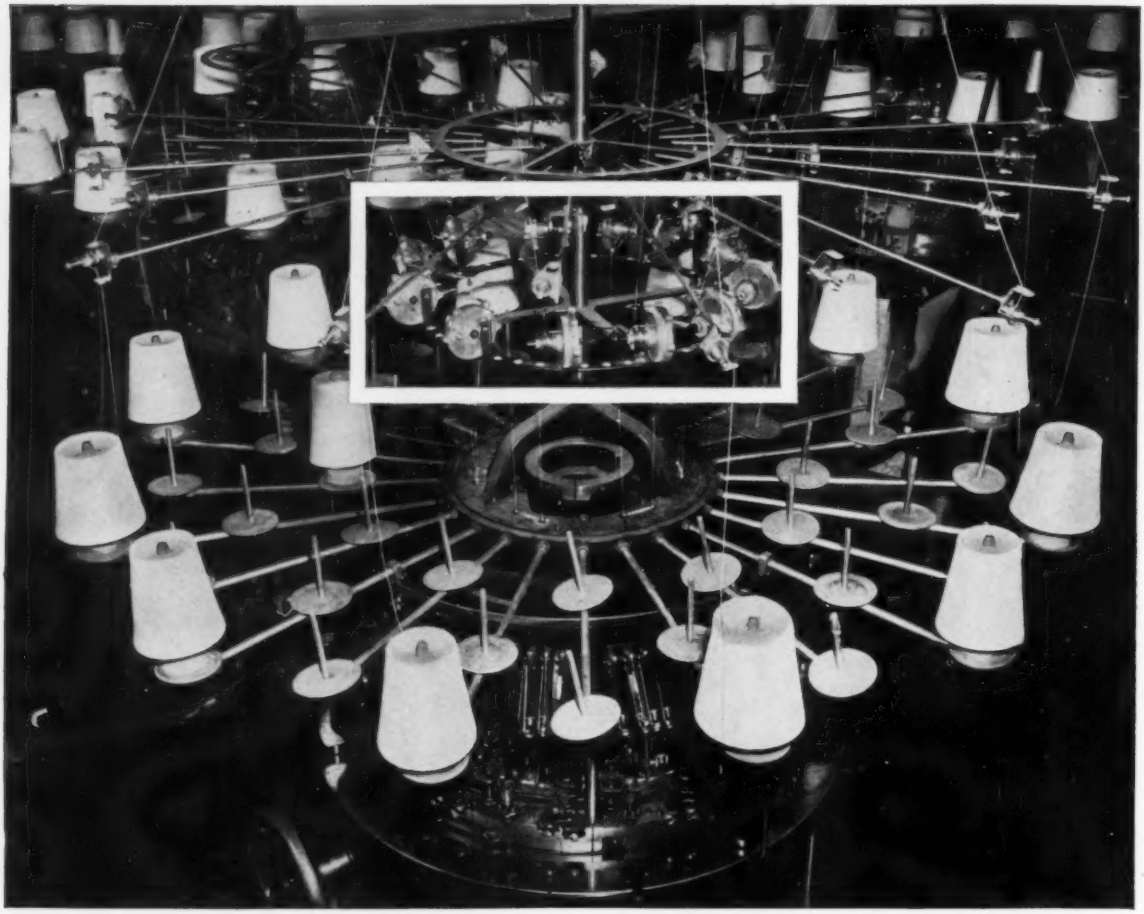
Knitter Hints No. 44

Stocking fabric stretcher, made by Du Pont, is a time-saver and plays no favorites in showing what the various heads of the full-fashioned machine are doing. . . .

Below, left: Stretcher in action. All stockings are stretched to their fullest extent without breaking.

Below, right: Measuring the stretched stocking. This one stretched 13" after boarding, which is about ½ inch too much. The fabric stretcher will show up tight heads just as easily. It is cold and calculating.





"ORLON"*–how it's tension-controlled at the Hudson County Knitting Mills

The Hudson County Knitting Mills, who make sweaters of DuPont "Orlon", recently installed Kidde Standard Compensators — one for each yarn feed — on their Jacquard Knitting Machines.

Mr. William A. Zeug of Hudson County Knitting Mills reports, "Since installing these Kidde Compensators we can control fabric widths much more accurately. We have no more uneven stitches due to irregular tension, no more back-winding of cones and less frequent stitch cam adjustment."

Reports like this, while amazing, are not unusual. Because Kidde Compensators, used by more than 500 leading textile mills throughout the nation, cut costs and produce a better product wherever they are installed! They can do the same for *you*. For more information on Kidde Compensators, write Kidde today.

** A DuPont acrylic fibre*

OTHER APPLICATIONS!

Kidde Standard Compensators, installed on Circular Knitting Machines will also solve tension problems in the running of rubber yarns, stretch-type nylon yarns, and most spun and continuous filament synthetic yarns!

Kidde (K Kidde)

The word 'Kidde' and the Kidde seal are trademarks of Walter Kidde & Company, Inc.

Walter Kidde & Company, Inc.
890 Main Street, Belleville 9, New Jersey

How to Figure the Organization Needed and Cost per Dozen in a Full-Fashioned Sweater Mill

BY JULIUS STEINBERG
Technical Director
Stonehill Knitting Machines Corp.
Brooklyn, N. Y.

EXCLUSIVE

THE COST methods given in this discussion pertain to equipment investment and personnel requirements when planning future operations. Although the principles outlined may be applied to a number of textile manufacturing enterprises, the specific example is that of a knitting mill which makes ladies' full-fashioned, shortsleeve, pull-over sweaters.

The material is 2/29s Orlon; the knitting equipment is the new 21-gauge, 12-section full-fashioned body knitter; and the production for the plant is estimated at 51,156 dozen sweaters per year.

To arrive at a **Total Direct Labor Cost** per dozen sweaters, a piece-work rate must be established as a base, then the various fringe benefits must be calculated as a percentage of the piece-rate and added to the base. This is done as follows:

A. Weigh the values of all operations and establish an hourly earning rate for each. This cost element will vary considerably from mill to mill and is the main basis for inter-mill cost differentials.

B. Calculate the piece-work rate per dozen sweaters for each operation. This is done by dividing the hourly earning rate by the attainable hourly production estimates cited here.

C. Calculate Vacation Pay. This is done by allowing 3.5% of the piece-rate for each operation.

(Continued next page)

With Body Knitting Hourly Earnings as the base or 100%, the other operations in a full-fashioned sweater mill will cost as shown:

Knit Bodies	100.0% (base)
Knit Trim	87.5% of base
Topping	62.5% " "
Loop Shoulders	62.5% " "
Loop Collars	62.5% " "
Side Seam	62.5% " "
Hand Sew	62.5% " "
Sew Labels	55.0% " "
Pin Ticket	55.0% " "
Press	62.5% " "
Mend	62.5% " "
Examine, Fold, Box	62.5% " "

I. THE EQUIPMENT

Item	Estimated Cost
*Body Knitting Machines (10)	$ 280,000
Flat Knitting Machines, 24 inch (10) (rebuilt)	35,000
14 Point Loopers (29)	6,800
Seaming Machines (12)	6,000
Flat Bed Presses (3)	2,400
Transfer Bars (340)	8,500
Miscellaneous Equipment	6,000
Total Investment Required	$ 344,700

* The body knitting machine used in this summary is a 21-gauge, 12-section knitter.

II. TRAINED PERSONNEL REQUIRED

Operation	No. Of Machines	Operators Required
Supt.-Fixer	—	1
Shipping Clerk-Helper	—	1
Cleaner, Oiler-Helper	—	1
Body Knitting	10	30 (3 shifts)
Trim Knitting	10	6 (3 shifts)
Topping	10	25 (3 shifts)
Shoulder Looping	19	19 (1 shift)
Collar Looping	8	8 (1 shift)
Side Seaming	11	11 (1 shift)
Pressing	3	3 (1 shift)
Hand Sewing	—	10 (366 man hours per week)
Ticketing (pin)	—	4 (160 man hours per week)
Mend (assume 10% mending)	—	1 (18.9 man hours per week)
Examine, Fold, and Box	—	9 (365 man hours per week)
Total Trained Personnel Required		129

III. COST COMPONENTS: Direct Labor

Each operation in the complete manufacturing cycle is first given an attainable hourly production value.

Operation	Production Value	Operation	Production Value
Knit Bodies	.870[1]	Hand Sew	2.357
Knit Trim	4.353[2]	Sew Labels	9.357
Topping	1.042[3]	Pin Ticket	6.238
Loop Shoulders	1.500[4]	Press	9.300
Loop Collars	4.056	Mend	5.300
Side Seam	2.650	Examine, Fold, Box	2.728

1. Production in dozens, based on an experienced estimate.
2. 5 machines per operator.
3. @ 25 dozen waistbands and cuffs in 8 hours (3 per garment).
4. Actually 3 dozen shoulders (2 per garment).

F-F Sweater Costing

(Continued from page 167)

D. Calculate Shift Premiums. This will vary, but if for instance the second shift premium is 5¢ an hour, and 12¢ an hour for the third shift, a fair allowance to figure is about 3% of the piece-rate for each operation which is worked multiple shifts. In this study, only body knitting, trim knitting, and topping are figured to run three shifts.

E. Calculate Holiday Pay. Usually, 1.5% can be taken as a safe figure. It is figured on each of the piece-rates for the various operations.

F. Calculate Workmen's Compensation or other benefit as required by the state. In this instance it is to be 2.8% of each of the piece-rates for the various operations.

G. Calculate Health and Accident Insurance. This is taken to be 2.5% of each of the piece-rates for the various operations.

H. Federal Old Age Benefit and Unemployment Compensation. This is taken to be 2.27% of each of the piece-rates for the various operations.

Total Direct Labor Cost can now be ascertained by totaling all items listed in elements B through H.

Overhead. Here is how to calculate Overhead Costs.

A. Superintendent-Fixer. Additional costs as listed and calculated in items F, G, and H in direct labor calculations are added to this man's salary, basing percentage multiplications on that salary. This total weekly figure is multiplied by 52 weeks to allow for vacations and holidays, and the total annual salary is charged against annual production based on 49 weeks of work (49 weeks @ 1,044 dozen per week = 51,156 dozen) by dividing total annual salary by total annual production in dozens.

B. Cleaner, Oiler-Helper. His fixed weekly wage plus additional costs as listed and calculated in elements C, D, E, F, G, and H in direct labor calculations are added to this man's wages and divided by weekly production to apportion this overhead cost.

C. Shipping Clerk-Helper. Figured the same as for Cleaner, Oiler-Helper.

D. Needles, Machine Parts, and Supplies for this type of knitting machine usually cost about $300.00 per month. ($300.00 x 12 months) ÷ 51,156 = Cost of this element.

E. Needles, Machine Parts, and Supplies for loopers and seamers would probably cost $25.00 per month. ($25.00 x 12) ÷ 51,156 = Cost of this element.

F. Depreciation Reserved for Machinery required and written off in 5 years would be as follows:

Body Knitting Machines: 10 @ $28,000 = $280,000 plus Freight on 10 machines ÷ 5 years ÷ 51,156 = Cost of this element.

Flat Knitting Machines*: 10 @ $3500 = $35,000 ÷ 5 ÷ 51,156 = Cost of this element.

*Note. All freight charges on machines other than body knitters are considered to be negligible.

Labor Union Activities in Politics

BY C. G. CAFFREY
Washington Representative
American Cotton Manufacturers Institute

EXTRACT*

LABOR unions today can no longer be considered in the same category with ordinary pressure groups. They have ceased to represent the rank and file of the American operative on wages and working conditions only, but have expanded their interest to every phase and facet of our government's political and economic life. They now appear before most all Congressional committees on practically all types of legislative matters such as taxation, international affairs, foreign aid, all types of welfare legislation, and many other issues.

One of the most significant events to take place in the labor movement has been the merger of the AFL and the CIO. Many are convinced that this action was taken primarily for political purposes rather than to improve the economic conditions for the members.

As a further indication of the labor unions to participate in the political field, I refer to the statement of George Meany, president of AFL and CIO, in which he stated that the important battle field as far as labor is concerned has shifted from the plant and the picket line to the halls of Congress. . . .

Let us analyze briefly for a moment the resources of the labor organizations. The new merger creates a membership of 15 million members with substantial control of over $25 billion in pension funds. Through the use and manipulation of these funds many union leaders now control an interest in corporations and sit across the table from management.

There is a steady movement of the national labor union headquarters to the capitol of the United States. In fact, there are forty-eight union headquarters now located in Washington with more planning to move there in the future.

Organized labor is ready to pour more than $3 million and thousands of politically trained men and women into the primary and election campaigns in an all-out drive for a return of a labor friendly administration to the White House. . . .

There are over 300,000 paid employees of labor union organizations whose primary purpose is to promote wherever possible the labor union movement and to participate in every way to bring about or obtain political control of our Government. The workers that I refer to are on the job 365 days a year and are at the call of their leaders. Neither of the political parties have ever had such a large paid staff to help in any election.

In the past the successful politi-

*From Mr. Caffrey's remarks before members of the Underwear Institute during the Institute's annual meeting in New York City on May 4, 1956.

Looping Machines: 29 @ $235 = $6815 ÷ 5 ÷ 51,156 = Cost of this element.

Seaming Machines: 12 @ $500 = $6000 ÷ 5 ÷ 51,156 = Cost of this element.

Flat Bed Presses: 3 @ $800 = $2,400 ÷ 5 ÷ 51,156 = Cost of this element.

Transfer Bars for Topping cost $25.00 each. ($25.00 x 10 machines) ÷ 5 years (depreciation) ÷ 51,156 = Cost for this element.

G. Freight On Yarn. 51,156 dozen sweaters of the type being considered requires about 183,700 pounds of yarn per year (including 3% waste, 7.5% tare). 183,700 x freight rate from source plus any shipping surcharges ÷ 51,156 = Cost of this element.

H. Payroll Clerk. Figured the same as for Cleaner, Oiler-Helper.

Building. This is the way to calculate building costs.

I. The set-up under discussion requires about 10,000 square feet of space. Annual cost for this includes addition of power, light, steam, taxes, depreciation on building, maintenance, and general insurance. This total ÷ 51,156 = Cost for this element.

RELATION of cost elements to total cost per dozen of full-fashioned sweaters.

Total Overhead Cost can now be ascertained by totaling all items listed in elements A through I.

Packing Cost. Take into consideration the several elements.

A. Cost of 12 Set-Up Boxes.
B. Cost of 12 Foundation Boards.
C. Cost of 12 Tissue Wraps.
D. Cost of 12 Rustle Sheets.
E. Miscellaneous Items, including waste (about 10¢).
F. Cost of Shipping Carton.

Total Packing Cost per dozen sweaters can now be ascertained by totaling all items listed in elements A through F inclusively.

Material Cost.
A. Cost of 2/29s Orlon.
B. Pounds Per Dozen Required (3.35).
C. Waste (3%).
Total Material Cost = A x B x C.

Dyeing Cost.
A. Pounds Per Dozen (3.35).
B. Dyeing Costs Per Pound.
Total Dyeing Costs = A x B.

Total Cost of Sweaters Per Dozen in Cases Ready for Shipment can now be ascertained by totaling **Direct Labor, Overhead, Packing, Material,** and **Dyeing** totals as developed herein, and adding **Indirect Labor** not developed herein (this is generally quite a small figure).

---

cal party was able to pay their debts by dispensing government jobs. This situation is no longer true since most of these jobs that could have been passed out are now filled by Civil Service employees. This situation is not true however, with the unions since they have complete jurisdiction of all the jobs within their organizations and can replace or shift any one of their employees at any time.

Have You Considered Using These "Disappearing" Yarns?

WHAT good is a thread or fabric that dissolves in water, except for playing practical jokes? It can be good for a variety of things, members of the American Chemical Society learned during their recent annual convention.

A host of worthwhile uses for soluble fibers—from detecting airborne germs to making skinless frankfurters—was described by a chemist of the United States Department of Agriculture.

A process for making skinless frankfurters by filling sausage casings and then using soluble thread to tie off the links was disclosed last year, the chemist observed.

Other present or potential uses for soluble fibers include:

1. Making lace by "embroidering" it on soluble cloth and later dissolving away the backing material.

2. The manufacture of crepe nylon by twisting soluble cotton yarn together with nylon, making the twists permanent by heat treatment, then dissolving the cotton to leave a coiled nylon "spring."

3. Producing a light-weight woolen by blending soluble fiber with wool in a conventional process, then washing out the cotton to leave a fabric with many tiny air spaces. The result, the chemist said, is "increased warmth from a very light, lofty material."

4. Providing open-work fabrics and novelty effects by alternating soluble yarns with regular textile materials in weaving.

5. Avoiding "seam - pucker," caused by different rates of shrinkage of fabric and sewing thread, by using thread that contains some soluble fiber. "On laundering, the soluble fiber disintegrates and enables the cotton yarn in the thread to adjust itself when it tends to shrink," the chemist explained. "If the ply is properly designed, taking into account the shrinkage of the fabric as well as that of the thread, the seam will still be flat without the undesirable puckered appearance."

6. Sewing a temporary basting stitch which is later self-removing.

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Made From the Finest Hickory and Dogwood

Box Fronts
Crank or Pitman Arms
Creel Sticks
Harness Roll Bearings
Jack Sticks
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Lease Rods
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Whip Roll Blocks
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Additional Stocks at:

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NORTHERN DIVISION
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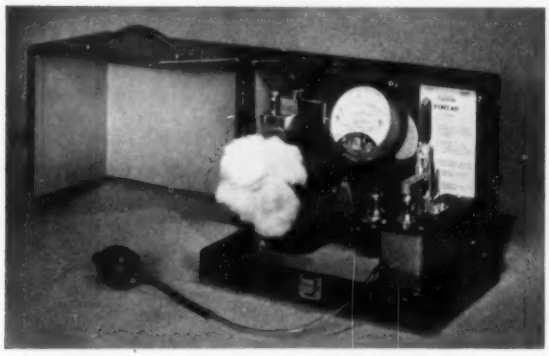
NEW EQUIPMENT PARADE

Machines and Equipment . . . Supplies and Services . . . Dyes and Chemicals . . . Books

Please note: Claims made in all of these announcements of new developments are of necessity based upon information furnished by the respective suppliers.—The Editors



Portable Instrument Measures Fiber Fineness

The Spinlab Portable Arealometer or "Port-Ar" is a complete fiber fineness testing laboratory housed in a leather case with carrying handle. The instrument measures the permeability of an eight gram sample and is calibrated in microns equivalent fiber thickness and also in "Micronaire Index."

The sample is weighed by means of a torsion spring balance. For portability, air is supplied by means of a rubber atomizer bulb; for laboratory use an aquarium pump can be used. The instrument is sensitive to variations in neither temperature nor humidity.

To operate the Port-Ar the user simply places the instrument on a stable surface and loosens two snap catches and hinges on the cover to the left. If he is in a windy location the cover may be used as a shield, otherwise it can be removed by simply lifting from its split hinges.

The operator next checks the zero of the permeability indicating meter. He then places an eight gram standard weight on the sample hook and, with the sample compression clamp in the up position, adjusts the zero screw until the permeability indicating meter reads near the red scale marker.

The operator now takes approximately 8 grams of cotton and places it on the sample hook. One pump of the atomizer bulb will cause the meter to indicate whether the sample is too heavy, or too light. If the meter goes above the red marker it is too heavy; if below, too light.

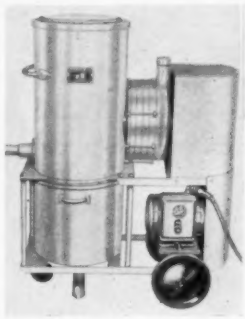
By pinching off bit by bit the sample can be adjusted to eight grams. The meter indicates to within 1% if it is on the scale so that it need not be adjusted exactly to the red line.

The sample is now forced in the sample cylinder and the compression plug placed on top. The compression clamp will enable the operator to compress the cotton into the chamber and hold it in this position. A few pumps of the atomizer bulb will enable the operator to read from the scale the fineness of the cotton sample.

Special Instruments Laboratory, Inc., 312 West Vine Ave., Knoxville, Tenn.

Do you want more data? Write ◂ or use card on page 187; list H-101

Vacuum Cleaner for Narrow Aisles



A vacuum cleaner designed to be towed down narrow alleys will recover, reclaim, and convey virtually any material such as metallic litter, liquids, and dirt.

A special separator tank is available at no extra cost for textile use. Attachments are available for collection from any surface: floors, walls, overhead, pipes, work-in-progress, machines, etc.

The units are designed for use in highly congested areas and to meet specific requirements created by modern production methods and present day maintenance standards. Also they are engineered for special production problems and intermediate applications that cannot be handled efficiently by undersized equipment, or economically by oversized equipment.

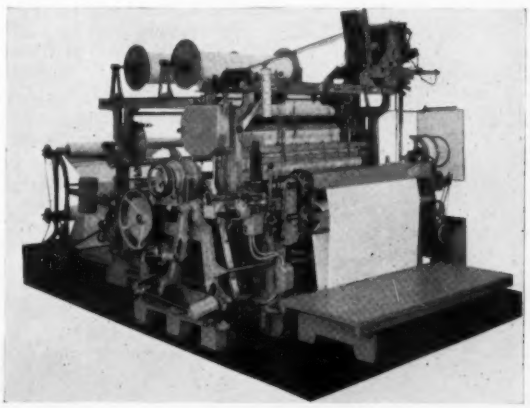
Invincible Vacuum Cleaner Mfg. Co., Dover, Ohio.

Do you want more data? Write ◂ or use card on page 187; list H-102

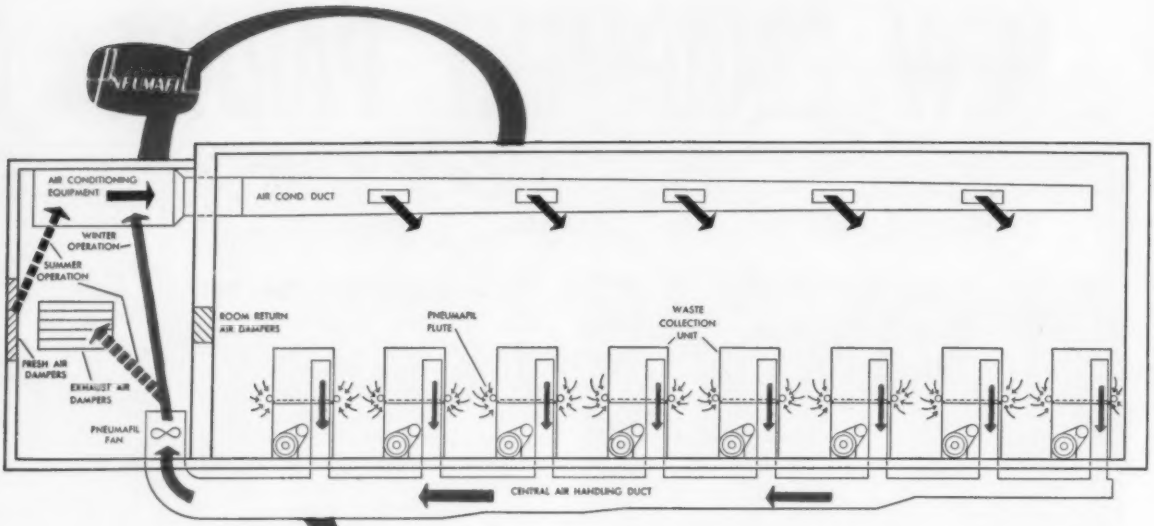
Automatic Double-Shuttle Plush Loom

Some of the features of the Jean Guesken fully automatic, bobbin-changing, double-shuttle plush loom, Model PST, are:

(1) Automatic filling changing mechanism for both



sheds is mounted on right side of loom. Capacity of battery is about 18 bobbins of yarn. At left side of lay there are two shuttle boxes; at right side a one-shuttle drop box with positive drive is mounted. The shuttles, working always in the same shed, are moved alternately with each pick from either side. Electric filling feeler on left side of loom operates automatic filling changing mechan-



"Spun-In" humidity...

Increased spinner assignments . . .
fewer slubs and gouts . . . no doublings . . .
reduced spinnable fiber waste . . . fewer ends down . . .
a result of . . .

PNEUMAFIL*

Central System Pneumafil* combines the advantages of regular Pneumafil* with controlled room air and humidity distribution. Waste collection units on each frame are connected by ductwork to centrally located fans and the "Pneumafil* air" is automatically exhausted outside or returned to the spinning room (or air conditioning plant) as conditions demand . . . resulting in . . . . . More even year round temperature . . . reduced cross air currents . . . ideal air distribution . . . uniform humidity.

Central System Pneumafil available in three types—

1. Central Air Handling —as illustrated above.
2. Central Material Recovery —automatically returns fiber to picker room.
3. Central PneumaKool —regular Central Air Handling plus spinning room motor heat exhaust.

Let us explain these three Central Systems to determine which will be most profitable for your mill.

PNEUMAFIL CORPORATION

CHARLOTTE 8, NORTH CAROLINA

Sales Offices: Atlanta, Georgia—Needham Heights, Massachusetts

*Reg. U.S. Pat. Off.
Copyright 1956, Pneumafil Corporation

ism on right.

(2) A three-position head motion, Model DS 55, can accommodate up to 16 harnesses and provides positive movement of each to low, middle, and high positions. Head motion permits forward and backward movement of loom without disengaging head motion from loom. Therefore, the machine can be operated as normal cam-motion loom.

(3) Pile regulator is mounted overhead, and weaver can easily see pile yarns from his stand in front of the loom.

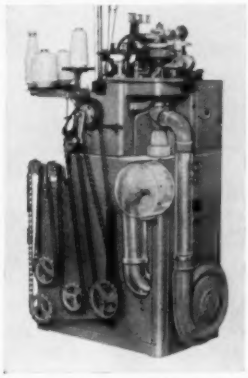
(4) The filling stop motion is of the center fork type and controls both top and bottom weaves with such accuracy that reversing the loom to match picks is not necessary.

(5) The pile warp stop motion is placed behind the harness frames at eye level so that pile end breaks can be repaired from the weaver's stand. All stop motions, ground warp and cord as well, are wired to signal lamps which indicate the respective motion that caused the stop. These burn continually while the loom is down.

Textile Machinery Import Company, 277 North Ave., New Rochelle, N. Y.

Do you want more data? Write ◂ or use card on page 187; list H-103

Automatic Tension Device for Ladies' Seamless Knitters



An air tension device, the SAR 8239 (designed originally for the Fidelity 400), can be installed on any seamless hosiery knitter. It draws up to six stockings into a transparent receptacle for easy removal. A nylon retainer on the receptacle permits the stockings to be removed with minimum danger of picking. The unit can be installed on the Fidelity 400 without need of auxiliary air inlets.

As the individual stockings complete the circular knitting cycle, they are automatically withdrawn from the knitting head through the take-up tube and deposited into the receptacle. Operation is positive.

Operation of the tension device in no way interferes with the knitting performance of the knitting machine. Uniform air tension on the stocking is maintained throughout the knitting cycle. Removal of the stocking by the device will not draw oil from the knitting needles or sinkers, and will not draw down stocking yarn during the knitting operation. The unit contains no moving parts and no mechanical arms or devices to cause possible damage to the finished stocking.

Operation remains constant regardless of knitting speed. No resetting is required if the machine is racked by hand. Lifting of dial cap for inspection during knitting cycle does not affect air take-up tension.

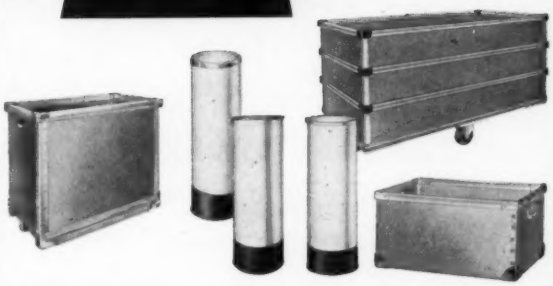
Circulation of air through the unit provides cooling advantages for the entire knitting operation where continuous 24-hour production schedules must be maintained.

Fidelity Machine Co., 3908 Frankford Ave., Philadelphia, Pa.

Do you want more data? Write ◂ or use card on page 187; list H-104

Textiles-in-process move faster in job-designed

KENNETT RECEPTACLES



Looking for a way to speed-up production? Start with materials handling. Clumsy, makeshift handling methods cause frequent delays—big losses.

Quick cure for materials-handling holdups are *job-designed* Kennett Receptacles. Here's why . . .

LIGHT WEIGHT. Because Kennett prime movers are compact and light, even women employees find them easy to lift and move. Result: fast, smooth transportation of materials.

SMOOTHNESS. Hard, glass-smooth surfaces permit materials to feed freely into and out of Kennett Receptacles. Toughness and resilience prevent dents, breaks and cracks that snag materials.

LONG LIFE. Hard *vulcanized fibre* by National stands up to hard use—takes years of punishment without damage. You'll get full value in service from every Kennett Receptacle you buy.

There's a standard or special Kennett Receptacle for every textile handling job. Our new folder, "Materials Handling in Textile Plants," gives full information. Write today for your free copy.

See you at Southern Textile Exposition—Greenville, S. C., October 1-5, Booth 473.

NATIONAL VULCANIZED FIBRE CO.

WILMINGTON 99, DELAWARE

ALSO MANUFACTURERS OF NATIONAL VULCANIZED FIBRE, PHENOLITE LAMINATED PLASTIC, PEERLESS INSULATION, VUL-COT WASTEBASKETS

NEW DIMENSIONS IN DESIGN AND SERVICE TO THE TEXTILE INDUSTRY

REPAIRS TO ALL MAKES
OF WARPER BEAMS

They run and look like
new when repaired by

ALLEN-THORNTON
CORPORATION

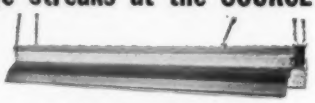
PARIS, GREENVILLE, S. C.
Genuine ALLEN Beam Heads and Parts
Tires tightened and new Tires
applied to wooden beam heads
Shaft nuts in stock

"We fix 'em RIGHT
the way you like!"

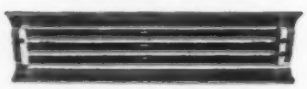
TELEPHONE:
GREENVILLE 2-1644

Check potential dye streaks at the SOURCE

with the new IDENTA-LITE*



Special high-intensity reflector finish



3—48" ultra-violet lamps

Immaturity
Cat-eye Cotton
California Cotton
Fibre Contamination
Oil Spots

Cotton Fibre

Cloth Inspection

Hosiery Inspection

Excellent for dyestuff and chemical identification and adulteration

The powerful ultra-violet rays of the Identa-Lite instantly show up almost all of the potential causes of dye streaks . . . from the bale to cloth inspection. Various defects produce characteristic reactions under this light, thus making it easy to correct each at its source.

For instance: Each oil used in opening, carding, spinning, weaving, and finishing can be typed and matched with oil spots on finished goods, thus making it possible to determine exactly where the spots originated.

Complete with base, tubes, reflector, starters, transformers, and hanging chains—ready for use on 110V AC line. Only $75.00 F.O.B., Charlotte.

Send us your order today. Satisfaction guaranteed.

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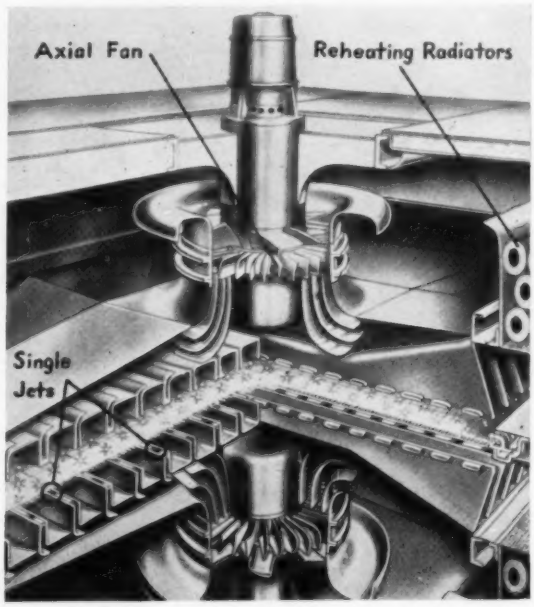
MANUFACTURING CHEMISTS AND CONSULTANTS
1122 So. Boulevard Charlotte, North Carolina

Dryer Uses "Lay-On-Air" Principle

High speed drying of all fabrics is provided by the compact Vits "Lay-On-Air" dryer manufactured in Germany by Vits-Electro Machine Works. It is now available through a United States agent.

The evaporative efficiency of the dryer permits a great



saving in floor space and, combined with excellent insulation against thermal loss, results in a low steam consumption. Higher temperatures are also possible, permitting drying, curing, and polymerization in one pass.

This dryer utilizes a forced convection system of drying (axial fans) and can be used in shrinking, pigment dyeing, etc. Fed and held by one pair of rolls at each end of the dryer, the fabric floats free between two single-jet blower systems above and below.

The rollers control the speed and desired stretch or shrinkage of the fabric. Goods of dress weight can be run at speeds of above 100 ypm. The drying mixture of steam and air is directed perpendicularly against the fabric at temperatures from 300 F to 400 F. The stream then passes through reheating radiators and back to the fans at 88% efficiency.

Cosa Corp., 405 Lexington Ave., New York 17, N. Y.

Do you want more data? Write ◂ or use card on page 187; list N-105

White Nylon Available for Tricot and Other Uses

White nylon is available in a 40-denier, 13-filament Type 680 yarn. Developed to meet tricot market demands, Type 680, especially the 40-denier, 13-filament yarn, is widely used in a variety of fabrics.

Altogether there are eight yarns included in Type 680, ranging from 20-denier, 7-filament to 200-denier, 34-filament, as well as a 15-denier monofilament.

The new yarns resist discoloration from heat in processing or laundering, have improved opacity, are easily bleached by all conventional home and commercial bleaches, and resist yellowing under peroxygen type bleaches such as peracetic acid. Resistance to degradation

by light is equal to or superior to that of bright nylon.

E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington, Del.

Do you want more data? Write ☁ or use card on page 187; list H-106

Machine Retips Three Skewers per Minute

Now available to mills in the United States is a skewer retipping machine manufactured by Pol Paxion in France. Designed for the economical and rapid repair of wooden skewers, the machine can bore, mill, and insert a new tip in the skewer in less than 20 seconds.

The machine is marketed with or without motor (1/6 hp and ¼ hp are standard). Boxwood tips for all types of skewers are available.

Stellite American Corp., 60 East 42nd St., New York 17, N. Y.

Do you want more data? Write ☁ or use card on page 187; list H-107

Germicide and Mothproofing Agent

A fungicide and bacteriostatic agent to prevent mold, mildew, and odor on fabrics of all kinds uses a water-soluble silver compound which can be introduced into the fabric at the last step in wet processing. On diaper tests, conducted at the boil in caustic soap, 50 wash cycles were completed before any loss of effect was noted.

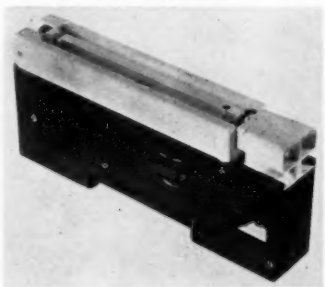
License to textile firms will be issued under strict quality control checks from the firm which developed the process. This strict control is designed to last only from one year to 15 months.

The approximate cost of the application, based on solution concentration of 25 parts to 150 parts per million, will be one cent per pound of fabric. The compound will be sold to textile and other processors in bulk, and as an aerosol for application by the consumer. Capsules will be available to laundries, home and commercial, for initial application and as a restorative.

Permachem Corp., West Palm Beach, Fla.

Do you want more data? Write ☁ or use card on page 187; list H-108

Motor-Driven Psychrometer



A self-contained precision instrument, named the Psychron, can be used in many fields where temperature and humidity must be closely checked or controlled.

The instrument, powered by three flashlight batteries, consists of a matched wet-and-dry bulb assembly ventilated by a tiny fan coupled to a motor. The thermometers attain an accuracy of plus or minus 0.3 F at any point.

Advantages include easy and safe close-quarter operation and precise aspiration rate. It is also immune from radiation from the sun, and has a built-in thermom-

Roller Type tenter clips are *NOT* new

M&W Roller Clips have set performance standards for 15 years.

M&W No. 11 Tenter Clips in use total more than half a million — giving perfect results wherever installed.

M&W No. 11 Roller Clips have set the production pace — up to 250 yards per minute — for years.

M&W has specialized in engineering, refining and manufacturing Roller Clips since 1940.

M&W Clips have all attributes needed for reduced maintenance cost, efficient operation, cloth protection, long chain life, precise performance.

M&W Clips are engineered for every type of operation, equipment and fabric.

When buying new or replacement tenter chains, remember these facts and invest in a thoroughly tested, tried and true, product.

"There are no weak links in an M & W Tenter Clip Chain"

M&W

Send for complete data
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MARSHALL and WILLIAMS CORPORATION
PROVIDENCE, R. I. • GREENVILLE, S. C. • NEW YORK, N. Y.

eter illumination system of variable intensity for easy reading in the dark. A removable air intake provides thermal shielding for the bulbs.

Range: 10% rh to 100% rh; 10 F to 100 F.

Friez Instrument Div., Bendix Aviation Corp., Baltimore, Md.

Do you want more data? Write ◂ or use card on page 187; list H-109

Single Process Bulk Stretch Yarn Unit for Existing or New Uptwisters

The "Falspin" bulk stretch yarn unit, which may be installed on existing double-deck uptwisters or may be specified for delivery on new machines, offers these advantages:

1. Five times more production than is obtainable by multi-stage processing, yet quality of yarn produced is just as high;
2. Complete heat setting gives maximum bulk and stretch;
3. Power consumption is very low—only about 7.5 kw;

The unit draws yarn from a supply package, through a tension device, into the heating element, through the false twist zone, and onto the take-up package.

Positive yarn tension at both sides of the false twist zone is made possible by two feed wheels which are integrally driven by a miniature chain drive housed in the hollow support column. A friction wheel pressed against the take up roll powers the feed wheels; thus, feed wheel speed is synchronized with that of the take-up roll.

The false twist spinner is a very narrow tube in special bearings, and its small diameter gives it a very high speed for normal belt speeds. For example, a belt speed to drive normal spindles at 10,000 rpm will drive the spinner at 32,000 rpm.

In operation the unit is readily adaptable to ordinary uptwisting. It is single-bolt mounted and interchangeable with conventional spindle assemblies.

The heating unit is of the book type.

Sydney & E. Scragg Ltd., Macclesfield, England.

Do you want more data? Write ◂ or use card on page 187; list H-110

Creel Bobbin Holder Eliminates Roving Stretch

The "Tension-rite" bobbin holder for installation on spinning frame creels maintains desired constant tension, eliminates roving stretch, and prevents roving slough-off without the use of drag arms.

Following an airfoil principle which eliminates the accumulation of lint, the bobbin holder is simple in construction (consisting of only five parts) and is made of solid aluminum alloy with glass-like finish. A special bearing provides compensating tension.

The gripping head acts as a vibration absorber in cases where spinning frames are located directly over weave rooms. Bobbins are easily creeled and removed.

Pneumafil Corp., 2516 Wilkinson Blvd., Charlotte, N. C.

Do you want more data? Write ◂ or use card on page 187; list H-111

Spintex Comb Box and Doffer Comb Units
For Cotton, Woolen and Worsted Cards

Spintex
Spinnerei- Maschinenbau Stiehl, Baumann & Co.
Munhardt (West-Germany)

1. Equipped with SKF roller bearings
2. Storage and distribution of all parts in USA.
3. High-pressure grease lubricated during operation
4. Simple design — rugged construction
5. Standard design for all types of cards

Agents in USA. Lenkotex Company, Inc.
136 Liberty Street, New York 6, N. Y.

Southern Distributors: Meadows Manufacturing Company, Atlanta, Georgia.

STATIC

It's wasteful. it's costly! But the SIMCO "Midget" Static Eliminator guarantees to be effective—at the lowest possible cost. Standard and shockless bars for every application. Equip now.

the SIMCO company
920 Walnut Street, Lansdale, Pa.

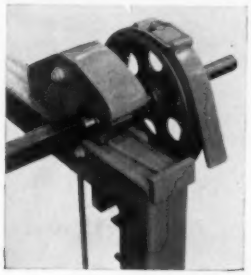
KENTEX
TEXTILE APRONS

Precision-built, of genuine leather, they "Fit Better—Wear Longer." Write for free samples and prices.

TEXTILE APRON CO., East Point, Ga.

HUGH WILLIAMS & COMPANY, TORONTO, CANADA—CANADIAN REPRESENTATIVE

Center Bar Let-Off Has Automatic Brakes



A heavy duty, extra strong center bar let-off can be attached to the floor or to a machine.

The center bar rotates on phenolic casters designed to withstand the shock incidental to the loading of heavy rolls. Break drums and bands are kept in alignment during running by a self-locking clamp which closes as the center bar is pushed into place. The clamps are released by a foot pedal.

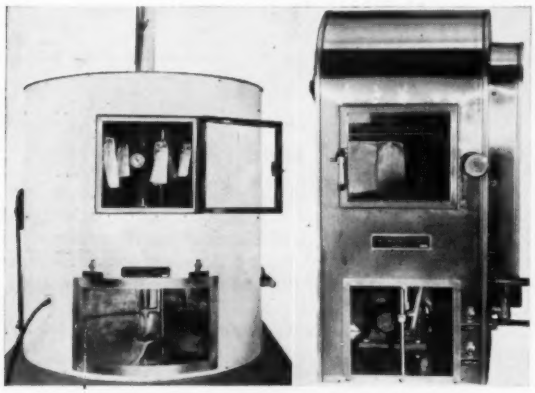
The braking system, regardless of the direction of rotation, is released or engaged automatically as the machine being fed is started or stopped.

Mount Hope Machinery Co., Taunton, Mass.

Do you want more data? Write ◂ or use card on page 187; list H-112

Gas Fading Chambers Will Control Fume Mix

A gas fading chamber for evaluation of atmospheric gas reaction on dyed textiles is now available to industry —useful in evaluating any fume-vulnerable goods such as



Drum type (left) and squirrel cage models.

ccated papers, inks, plastics, rubber, textiles, dyestuffs, and packaging materials.

Two models, a drum type and a squirrel cage type, are offered. Both instruments feature corrosion-resistant chambers, self-sealing closures and exhaust vents which

Correction

The description of the *Hartford Bobbin Hanger* which appeared on page 223 of TEXTILE INDUSTRIES for June, 1956, contained an error, and we sincerely regret this. Instead of the hanger having a cast iron body as the announcement indicated, this component of the unit is a die casting, the principal metal in the alloy utilized for this purpose being aluminum.—The Editors.

for the best in CANVAS doffer's boxes

LOOK FOR Lane

Specially designed for use with doffer's trucks, *only* this economical Lane Style 20 Doffer's Box incorporates *all* these quality features for *long, dependable service at very low cost:*

- Full-capacity body of Lane-woven duck—with deeply-embedded stitches.
- Light-weight, extra-strong spring-steel frame with rugged, flexible hardwood bottom.
- Rounded rivets prevent snags and wear at all points.

STANDARD DIMENSIONS:
26" long, 16" wide, 20" high

Lane canvas baskets, hampers, and trucks are *built to take it, built to last!*
Call for our representative. He's a specialist in adapting Lane baskets to your material handling problem. Write today. 6877

Canvas Basket Craftsmen Since 1894

Lane

THE LANE BASKET

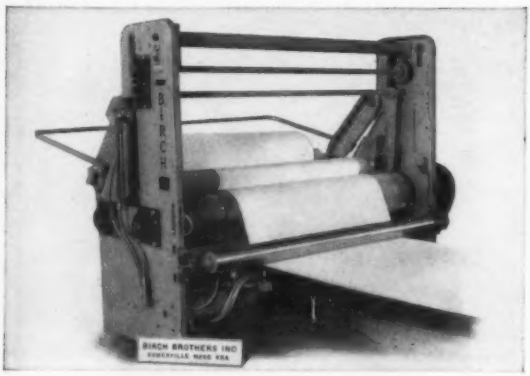
W. T. Lane & Bros., Inc., Poughkeepsie, New York

Are Your Travelers Leading a DOUBLE LIFE?

DIAMOND FINISH Eadie Multi-Groove Rings often double the life of travelers. And it's possible to get *several* doffs with a single greasing. You never have to grease with partly filled bobbins in the way.

WHITINSVILLE (MASS.) SPINNING RING CO.
DIAMOND FINISH
Makers of Spinning and Twister Rings since 1873

Rep. for the Carolinas & Va.: W. K. SHIRLEY, 25 Oak St., Belmont, N.C.
Rep. for Ala., Ga., & Tenn: H. M. JACKSON, 216 Longview Dr., Jefferson, Ga.



MOD. 5 CUT-OFF WINDER
100% ANTI-FRICTION BEARING EQUIPPED
ADJUSTABLE PNEUMATIC LOADING ON SHELL
CAPACITY FOR 50" DIAMETER ROLLS
HEAVIEST CONSTRUCTION AVAILABLE
NEW LAPPING DEVICE WORKS EQUALLY WELL
ON SHELLS OR TUBES

BIRCH BROTHERS, INC.
32 KENT ST.
SOMERVILLE 43, MASS., U.S.A.

BIRCH TREE

Southern Representative
JOHN C. COSBY
P. O. Box 212
Greenville, S. C.

permit use of a wide variety of gas fumes.

Ports in the feed line permit introduction of controllable quantities of different gases to the chamber. Rotations of the samples is automatic to insure even presentation of the samples to the fumes. Also included are internal lighting and a dial thermometer.

United States Testing Co., Inc., 1415 Park Ave., Hoboken, N. J.

Do you want more data? Write ◂ or use card on page 187; list H-114

Polyethylene Bag Maker Also Cuts and Dispenses Sheet Stock

A combination bag maker and sheeter will handle tubular or flat stock material up to 24" wide, and will cut sheets or seal bags from 3" to 100" long. Polyethylene in thicknesses up to 8 mils can be sealed through adjusting the dwell time on the heating bar.

Controls are manual for setting up purposes, and automatic for production runs. Unskilled employees can be taught to set up and operate the machine in a short time. The unit runs on 120-volt, 60-cycle current.

Suggested uses include wrappings for textile products such as hosiery, sweaters, sheets, yarn, etc. Packages can be sealed from 0" to ⅜" from end and perforated to allow "breathing."

Optional equipment includes: perforator, foot switch, predetermined counter, stacker, electric eye for cutting printed stock (using register marks as guide for length dimensions), extra stock rack for multiple feeding, and extension table and conveyor belt.

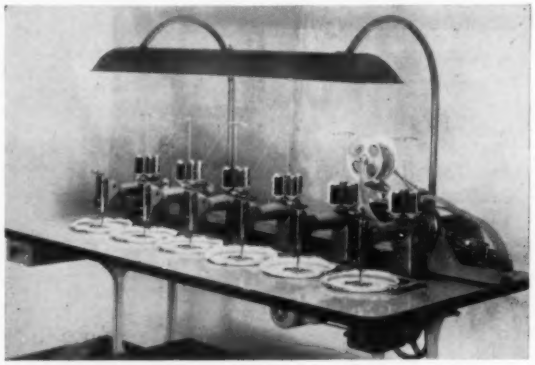
Lectromatic Devices, Inc., 3347 West Addison St., Chicago 18, Ill.

Do you want more data? Write ◂ or use card on page 187; list H-115

One Person Can Tend 12 to 16 of these Embroidery Heads

Automatic embroidering can be done on the new four- and six-head machines manufactured by Markschaeffel & Co., Western Germany. Called Marco, the machines are light, compact, and low in maintenance and operating costs.

An unskilled employee can operate up to three of the



machines, which deliver 275 stitches per minute per head. Cross, back, Toledo, Madeira, and other stitches may be made on most materials, from the coarsest to the finest. Numerous types of yarn may be used, such as rayon, silk, cotton, and worsted.

The patterns are produced from Jacquard cards, which

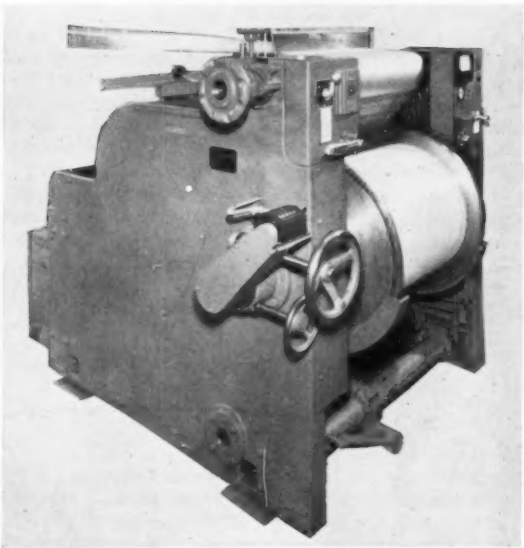
are made with up to 20,000 stitches per chain and have a life of from 4000 to 5000 designs. The cards are kept rolled up automatically by a low tension device which may be attached to the back of the machines without increasing the floor space requirements.

The machines stop automatically in case of yarn breakage, crossing of embroidery areas, changing of thread or needle, and ending of card or pattern.

Alfred Hoffman & Co., 629-635 Fifty-ninth St., West New York, N. J.

Do you want more data? Write ◂ or use card on page 187; list H-116

Sectional Warper Maintains Constant Speed



Constant speed on a recently developed sectional warper is maintained by a rheostat connected to the pressure roll. The initial speed is selected by a hand rheostat. Maximum speed: 600 ypm; minimum speed, 75 ypm.

Pressure on the felt-covered compression roller is maintained by two air-loaded hydraulic cylinders. The diversion roll is synchronized with the pressure roll by a timing belt. The beam is driven by a single belt from the d-c motor.

Electric brakes on the main beam and on the diversion roll assure synchronous stopping of all motion without scuffing the yarn. A maximum air pressure of 90 lb is needed to actuate the pressure roll and the semi-automatic hydraulic doffing system.

Some of the other features included on the warper are: taping attachment, fan reed with dents to match creel, one static eliminator with transformer, a predetermined revolution counter, a yardage counter, and a tachometer.

Kidde Mfg. Co., Bloomfield, N. J.

Do you want more data? Write ◂ or use card on page 187; list H-117

Instrument Measures Size and Volume of Pores of Cloth

A complete pore-structure analysis of any porous material can be performed in a ten-minute operating cycle by means of the new Aminco-Winslow Porosimeter, which measures sizes of pores ranging from 0.1 mm to 0.06

The Laurel Leaf

BUSINESS MAGAZINE EDITION

Laurel PYROSAN A— a *different* kind of fire retardant—is a product which merits your serious consideration. If your goods require a fire retardant finish, and a non-permanent product will do the job, consider these properties: (1) No boardy hand, (2) No damp saggy hand, (3) No efflorescence or crystalizing on the fabric, (4) A soft, pleasing hand, (5) A colorless liquid product which is easy to use, and may be diluted cold and used cold, with no time consuming predissolving necessary, (6) Highly effective, no afterflowing and a minimum of afterglow, and (7) No crystalizing or decomposition in storage. Like a free sample? Write.

Here is a truly cold water dispersible wax emulsion for winding trough work. Laurel WAX EMULSION WG, proved over the years, has been improved for easier handling. Now, if hot water is a problem in your winding room, the answer is easy: use WAX EMULSION WG—and at no sacrifice in active content! It is recommended highly for the treating of cotton, wool, Orlon, and other pure and blended spun knitting and sewing yarns. It imparts lubrication, softness, and conditioning to the yarn and thereby improves running properties. It may be applied to natural, mercerized, or dyed yarns, and it is easily removed from finished garments in a regular scour. It won't turn rancid, cause odors, yellow whites, or change shades of dyed goods. And, when applied to sewing threads it often eliminates the need for hot waxing or other treatments. Why not take a tip from the leaders . . . order some Laurel WAX EMULSION WG *now!* Samples, too, are available on request.

Laurel Brand

Laurel SOAP MANUFACTURING CO., INC.
TIOGA, THOMPSON & ALMOND STS., PHILA. 34, PA.

Warehouses: Paterson, N. J., Chattanooga, Tenn., Charlotte, N. C.

Moretex has no "Cure-alls"

Most Moretex textile chemicals cover a wide range of applications, but each problem is studied before a recommendation is made. If you need something special, Moretex will make it for you. You'll get better results when you call on Moretex.

Try **MOREPEL RW** (renewable water repellant). Freeze-thaw stable, particle size less than one micron; you can add materials first or last to hot or cold water.

MORETEX *Chemical Products,* INC.
ESTABLISHED 1908
MANUFACTURING CHEMISTS SPARTANBURG, SOUTH CAROLINA

CHAPMAN
STATIC ELIMINATORS

FOR **DRAWING FRAMES**

MANY INSTALLATIONS HAVE ALSO BEEN MADE ON
CARDS
GARNETTS
WARPERS
CREELS
SLASHERS
NAPPERS
AND OTHER TYPES OF TEXTILE EQUIPMENT
Write us for details

IMPROVE QUALITY REDUCE WASTE INCREASE PRODUCTION

SPECIALLY DESIGNED CHAPMAN STATIC ELIMINATORS CAN BE EASILY INSTALLED ON YOUR DRAWING FRAMES TO GIVE YOU PERMANENT, POSITIVE STATIC ELIMINATION ON WOOL AND WORSTED YARNS, AS WELL AS SYNTHETIC FIBERS AND BLENDS.

MANY YEARS OF TROUBLE-FREE SERVICE IS YOURS WITH A CHAPMAN STATIC ELIMINATOR, AND YOU WILL QUICKLY DISCOVER THAT OUR EQUIPMENT—

- STOPS STICKING IN COILER TUBES
- PREVENTS FLY
- GIVES LESS BROKEN ENDS
- REDUCES LICKING
- ELIMINATES BALLOONING

CHAPMAN STATIC ELIMINATORS
manufactured by
THE PORTLAND COMPANY 22 FORE ST., PORTLAND, MAINE

microns, and pore volumes as small as 0.0005 ml at each pore diameter.

The instrument operates on the mercury-intrusion principle, is completely hydraulic (gas free), and devoid of operational hazards. Pressure is applied by means of a manually-operated fluid pump.

American Instrument Co., Inc., Silver Spring, Md.

Do you want more data? Write ◂ or use card on page 187; list H-118

Shuttle-Changing Loom Does Not Stop for Transfer

A shuttle-changing loom made by Henry Livesey Ltd. (England) does not pause to insert a new shuttle. The spent shuttle is side-tracked in time for the full one to be inserted in the box and thrown without lost time.

Some other features of the loom are: optional dobby motion, nylon picking rolls, oilless bearings on top shaft, underpick motion, center fork, loose or fixed reed, electric filling feeler motion, mechanical or electrical warp stop motions, and an annunciator system to indicate the reason for loom stoppage. Normal loom widths are from 36" to 80" reed space.

The dobby motion is adjustable for dwell from ⅛ pick to ½ pick, and gives a maximum shed of 5¼". A simple, slow running reversing motion is arranged for pick finding.

Trumeter Co., 1265 Broadway, New York 1, N. Y.

Do you want more data? Write ◂ or use card on page 187; list H-119

Equipment Briefs

Liquid Neoprene for Coating Against Corrosives. Liquid neoprene can be brushed or sprayed on as a protective coating against acids, caustics, and solvents. The shelf life is adequate, making it possible to stock in needed quantities for treating air conditioning equipment, louvers, concrete foundations in fresh or salt water, and for tanks, pipes, etc., exposed to corrosive fumes or liquids.

The Wilber & Williams Co., Boston 35, Mass.

Do you want more data? Write supplier or use card on page 187; list H-201

Seamless Flexible Tubing. For vacuum or pressure use, seamless corrugated flexible tubing is made with inside diameters from 1/16" to 8". Any type of end connection can be supplied, such as welded end, pipe nipples, standard or special flanges. Metallic braid jackets are supplied for pressure use.

Seamlex Co., 4123 24th St., Long Island City 1, N. Y.

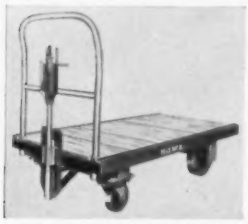
Do you want more data? Write supplier or use card on page 187; list H-202

Heavy-Duty Power Distribution Panelboard. Designated Type QMR, a panelboard designed for 600-volt a-c maximum service, 2-wire or 3-wire single-phase, and 3-wire or 4-wire 3-phase application is available with rigidly mounted fusible switch units of the quick-make, quick-break type. The units are of modular construction to permit ready interchangeability, and can be provided in ratings of 30 to 200 amperes, 2-pole and 3-pole construction. Units are horsepower rated for both standard and time delay fuses.

General Electric Co., Distribution Assemblies Dept., Plainville, Conn.

Do you want more data? Write supplier or use card on page 187; list H-203

Light-Weight Dragline Trucks. A line of dragline trucks is built with platform sizes and carrying capacities to meet any requirements. Of all-welded-steel construction, they are equipped with light and replaceable wood decks, and ball bearing wheels with grease fittings; sealed ball bearings are optional. Wheels may be steel, plastic, or rubber tired. Platform height, 7½" to 14". Also optional are a blackboard and a bill holder.



The Howe Scale Co., Rutland, Vt.

Do you want more data? Write supplier or use card on page 187; list H-204

Tensiometer Sensing Head. Yarn tensions of up to 50 lb can be measured by a sensing head so sensitive that it gives a maximum deflection of 1 mm per 30 grams. Part of a recording tensiometer, the head has two pulleys which are placed astride the running yarn and twisted until the yarn forms an "S" shape around the pulleys. For recording tension applied in spinning, winding, warping, and other processes.

Custom Scientific Instruments, Inc., 541 Devon St., Kearney, N. J.

Do you want more data? Write supplier or use card on page 187; list H-205

New Blue-Green Dye. With good resistance to crocking, perspiration, and salt water, Artisil Direct Blue Green also possesses excellent fastness to sunlight on acetate and nylon fibers. Can be used in the production of greens and turquoise shades and is especially suited for dyeing nylon fabrics which will be heat treated later.

Sandoz Chemical Works, Inc., 61-63 Van Dam St., New York 13, N. Y.

Do you want more data? Write supplier or use card on page 187; list H-206

Motor-Driven Small-Parts Cleaner. A motorized small-parts cleaning machine, designated the L & R Monarch, is designed to clean, dry, and polish small parts in quantity. Basket assemblies feature one large basket, 8" x 4½" deep, into which fit three smaller baskets for parts segregation. All baskets as well as the baffle plate are of Monel.

L & R Mfg. Co., 577 Elm St., Arlington, N. J.

Do you want more data? Write supplier or use card on page 187; list H-207

Cold Water Soluble Starch Polymer. When added to the present resin formulation, "Monatose" results in a reduction of residual shrinkage and improved flat abrasion resistance. The cold water soluble starch polymer also enhances the durability for dry cleaning and gives added bulk, weight, and fullness to the finished fabric.

Mona Industries, Inc., Paterson 4, N. J.

Do you want more data? Write supplier or use card on page 187; list H-208

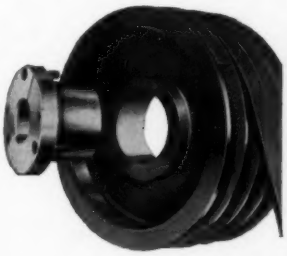
Non-Flammable Hydrazine for Boiler Feed Water. A form of hydrazine which has no flash point and no fire point is called "Scav-Ox," and when added to boiler feed water it will remove several times the oxygen taken out

The adjustable-speed wedgbelt drive is a Combination...

... of American Adjustable-Diameter Sheaves, allowing stepless speed variation by internal change of pitch diameter of the sheave. Simultaneous flange movement keeps belt alignment constant. Exclusive *double-taper* hub locks flanges in position, locks sheave tight to shaft ... assures positive speed control.

... of American Wedg-Tite Bushings with exclusive *steeper taper* for fast installation and easy removal, uniform compression, positive alignment, and maximum clamping action on the shaft.

... of American Wedgbelts, mold-cured to vary less than ¼ of 1% in length, with strict uniformity in taper, thickness and width. Dacron* cords in Super-Service Wedgbelts are 2½ times stronger than rayon, withstand shock loads and high starting torques.



... of American Wedg-Tite Companion Sheaves, precision-matched to the same taper of the bushing, the exact sidewall angle of the belt. Machined to a satin finish, with accurate balance and concentricity, they lower frictional power-loss, increase plant efficiency.

*Reg. TM. E. I. DuPont de Nemours & Co., Inc.

THE RIGHT COMBINATION FOR MAXIMUM VARIATION OF MACHINE SPEEDS

VISIT US AT THE SOUTHERN TEXTILE EXPOSITION—BOOTH NO. 251

The American Pulley Company
4232 Wissahickon Avenue
Philadelphia 29, Pa.

Dispose of Static

with HERBERT OXY COLD BARS

and rid yourself of static problems forever. No more lost time and poor performance because of Static.

Install HERBERT Oxy Cold Bars on your machines — absolutely safe — guaranteed — will improve quality and quantity of work.

Simply send us details of your machines for full information and our proposal. Take advantage of this opportunity to find out how Herbert Oxy Cold Bars eliminate Static and pay big dividends in improved work.

HERBERT PRODUCTS INC.
74-34 JAMAICA AVE. • WOODHAVEN 21, N. .Y

NEW The Automated MICRONAIRE

- **Speeds up checking two to three times**
- **Prevents operator fatigue**
- **Less chance for inaccurate reading**
- **Safe—both hands operate valves simultaneously**
- **Micronaires now in use can be automated**
- **New automated models now available**

For NEW Book "Advantages and World-Wide use of the Micronaire in all segments of the Cotton and Textile Industries"

Write to Dept. 29 — **THE SHEFFIELD CORPORATION**
DAYTON 1, OHIO, U.S.A. 7515

GOLDEN ANNIVERSARY

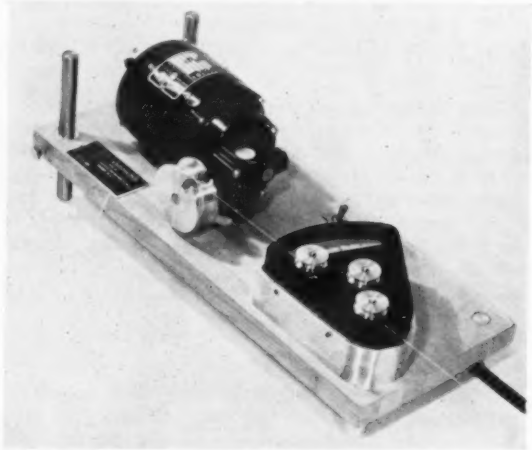
SHEFFIELD
manufacture and measurement for mankind

by equivalent quantities of some contemporary compounds. It adds no solids to the water, can be used in high or low pressure systems, and renders the boiler water alkaline.

Olin Mathieson Chemical Corp., 460 Park Ave., New York 22, N. Y.

Do you want more data? Write supplier or use card on page 187; list H-209

Tensiometer for Sewing Threads. Designed to measure tensions of sewing threads, the SMT tensiometer passes the thread to be tested around three pulleys driven by an electric motor. The thread take-off point is from the



thread guide above the needle of the sewing machine. Other possible uses of the instrument are for testing the effects of finishes, twist, softeners, and lubricants on sewing thread.

Custom Scientific Instruments, Inc., Kearney, N. J.

Do you want more data? Write supplier or use card on page 187; list H-210

Duct Work of Reinforced Plastic for Corrosive Conditions. Tanks and duct work of polyester glass reinforced plastic are light in weight and have superior resistance to oxidizing acids and many chemicals. A 600-gallon tank of this material weighs only 150 lb. Stock sizes and shapes available; special shapes or sizes produced to order.

Haveg Industries, Inc., 900 Greenbank Rd., Wilmington, Del.

Do you want more data? Write supplier or use card on page 187; list H-211

Concentrated Vat Powders. A line of dispersion vat powders for dyeing in highly concentrated form possesses such qualities as excellent dispersion, rapid wetting, and lack of dusting. Suited for all the applications employed in vat dyeing, and particularly for package and beam dyeing. Colors: Blue BCL, Red Brown, Orange RRT, Navy Blue BN, Olive Green B, Flavone CC, Dark Blue BO, Olive R, and Pink FF.

American Aniline Products, Inc., 50 Union Square, New York 3, N. Y.

Do you want more data? Write supplier or use card on page 187; list H-212

Thermosetting Resin for Minimum Care Fabrics. Hartoset E, a low-polymeric resin of the modified urea type, is a stabilizing resin for shrinkproofing and creaseproofing cottons, rayons, and acetates. It has unlimited storage life, is readily soluble, gives pad baths of long stability, and is compatible with softeners, thickeners, and vinyl and silicone emulsions.

Hart Products Corp., 1440 Broadway, New York, N. Y.

Do you want more data? Write supplier or use card on page 187; list H-213

Drum Warmer. A drum warmer made of two sheets of metal, suitably embossed and welded to form flow channels, is available in outside, inside, or platform styles. Stock sizes for the standard 55-gal drum are made of stainless or mild steel, and upon order will be made of other metals to meet special conditions. Steam or other heating; special sizes or shapes made to order.

Dean Thermo-Panel Coil Div., Dean Products Co., 616 Franklin Ave., Brooklyn 38, N. Y.

Do you want more data? Write supplier or use card on page 187; list H-214

Nylon Pipe Stays Firm Up to 225 F. Nylon tubing, Temperatube, which does not soften in temperatures up to 225 F, is available in coils or in straight lengths, in outside diameters from 0.375" to 1.5", and in wall thicknesses from 0.025" to 0.125". Of high tensile strength, it can be used in pressure systems, is non-toxic, has good weather resistance, is lighter than copper, aluminum, etc., and will not cold flow.

The Danielson Mfg. Co., Danielson, Conn.

Do you want more data? Write supplier or use card on page 187; list H-215

Level Control. An electromagnetic level control, Type 10CB4, uses the electrical conductivity of fluids to maintain levels. Four different ranges of resistivity of the probe circuit are provided to match the conductivity of the fluid being controlled. It can be used for single level indication or alarm, or pump-up or pump-down control. The control operates on 115/230 volts 5/60 cycles a-c. Low a-c voltage is employed in the probe circuit to assure safety and to minimize or eliminate electrolysis.

Photoswitch Div., Electronics Corp. of America, 77 Broadway, Cambridge 42, Mass.

Do you want more data? Write supplier or use card on page 187; list H-216

No-Shock Box Truck. With a capacity of 800 lb, a tilt-type box truck with pneumatic tires is built of formed sheet steel which is welded and mounted on a hardwood frame. Overall size is 26" wide, 49" long, 24" deep; overall height is 36". Equipped with two rigid center casters and a ball bearing swivel caster at each end. The 4-ply rubber tires reduce the shock on floors and the box itself when moving over rough surfaces.

The Hamilton Caster & Mfg. Co., Hamilton, Ohio.

Do you want more data? Write supplier or use card on page 187; list H-217

New Red Dye. A dye which covers barre viscose and reserves acetate, Pyrazol Fast Brilliant Red, yields bright red colors on cellulosic fibers. With excellent building up properties, and a high degree of solubility, it is suitable for all types of closed machine dyeing. From acetic acid baths it has good affinity for silk, and its building up property renders it especially suited for spun viscose fabrics.

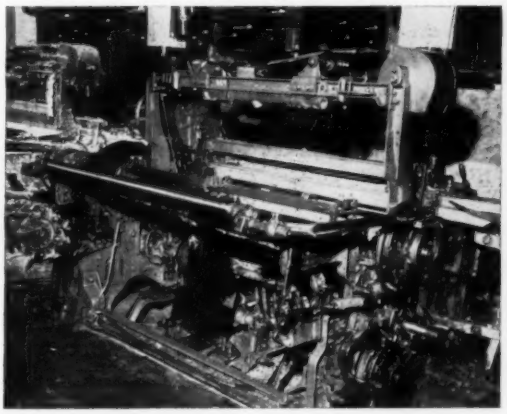
Sandoz Chemical Works, Inc., 61-63 Van Dam St., New York 13, N. Y.

Do you want more data? Write supplier or use card on page 187; list H-218

Tachometer for Integral Horsepower Motors. Designed to indicate speeds on integral horsepower motors and automatic machinery, the Model 5 Wac-Tac can be attached to motors to offer a minimum of protrusion. It delivers an a-c voltage whose frequency and magnitude are linear with speed, and thus is particularly useful to controls sensitive to either frequency or voltage. The generator sinusoidal voltage may be as high as 25 volts

reduce seconds with LINTGO*

** the new help for lint-clogged machinery*



LINTGO leaves machinery clean and lint-free as above. Lint does not swirl into the air.

SPRAY ON LINTGO—BLOW DOWN LINT DROPS TO THE FLOOR

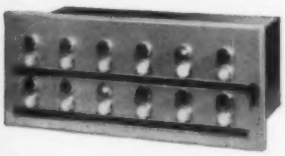
If you have lint-clogged looms; greasy, linty ring-rails and winder cams; drive cylinders that are so greasy your tapes slip constantly; or any one of countless other lint or grease problems, you will find LINTGO a life-saver!

LINTGO reduces slubs, seconds, and improves quality. It is non-corrosive, odorless, non-flammable, fumeless, non-toxic and inhibits rust. It can and will solve your lint problems quickly, easily, economically and without hazard. Send for technical literature explanning properties, methods of application, etc., today using the handy, postage-paid return card on page—

Lester Laboratories, Inc.

P. O. BOX 4897 ATLANTA 2, GA.

Panalarm Annunciator Systems Detect Off-Normal Conditions For Immediate Corrective Action



In any process, or on automatic or semi-automatic machinery, the immediate correction of off-normal conditions can greatly reduce rejects. Panalarm Annunciator Systems are modern working tools permitting closer equipment control by operating personnel.

The Panalarm Annunciator is a coordinated, multiple-unit signal system that provides instantaneous detection of off-normals at predetermined control points. Alerting signals are both visual (illuminated windows or bullseyes) and audible (horns, bells, etc.). Modular component design and circuit flexibility permit systems to be engineered to your specific requirements and allow simple modification for future needs.

Dependable operation of the Panalarm Annunciator System is assured by heavy-duty, instrument-type construction throughout. Complete pre-wiring permits easy installation. Write for Bulletin 100A.

PANALARM DIV., PANELLIT, INC.

7513 North Hamlin Avenue • Skokie, Illinois

Panellit of Canada Ltd., Toronto 14

NOW IN WEAR-RESISTING

NYLON

Shift-marker

SPINNING TAPES

AVAILABLE IN 3 WIDTHS: 1/2", 5/8", 3/4"

Industry-famous TIGER-TUF Shift-marker Spinning Tapes are now available in long wearing NYLON. These tapes provide the same controlled quality you get with Tiger-Tuf cotton tapes. Coleman supplies bonding strips and bonding machines for joining these new NYLON tapes. Write for details.

COLEMAN COMPANY, INC.

GREENVILLE, SOUTH CAROLINA

per 100 rpm. The frequency is 30 cycles per second per 100 rpm.

Wac Engineering Co., 35 South St. Clair St., Dayton 2, Ohio.

Do you want more data? Write supplier or use card on page 187; list H-219

Polyethylene Softener and Plasticizer. A nonionic emulsion of polyethylene, Monapolene N, serves as an effective softener and plasticizer for thermosetting resin finishes on rayon or cotton fabrics. Results in improved properties such as tear strength, retention of tensile strength, and improved flat abrasion resistance.

Mona Industries, Inc., Paterson 4, N. J.

Do you want more data? Write supplier or use card on page 187; list H-220

New Lift Truck Line. A gasoline powered lift truck series of 3000, 4000, and 5000-lb capacities is equipped with pneumatic tires, has low silhouette, increased safety factors, automobile-like controls, greater operator comfort, and faster speed of operation. Short turning radius, trunnion steer wheels, and short overall length give good maneuverability. Brakes are self-energizing in both directions, controls are in full view, there is plenty of leg room, and the adjustable seat is mountable from both sides.

Hyster Co., 2902 N.E. Clackamas St., Portland, Ore.

Do you want more data? Write supplier or use card on page 187; list H-221

Softener Resists Discoloration on Aging. A softener, Cynatex SB-100, gives softness and lubricity to all synthetic fibers, cotton, and other natural fibers. Only low concentrations are necessary for maximum softness. The softener resists scorching and minimizes migration of such dyes as naphthols. It is neutral in reaction, anionic in nature, and compatible with starch and salts commonly used in textile finishing. Resists discoloration on aging, can be used for off the loom fabrics, all knitted goods, weighted fabrics, package dyed yarn, and a plasticizer for polyvinyl acetate finishes.

American Cyanamid Co., Special Products Div., Bound Brook, N. J.

Do you want more data? Write supplier or use card on page 187; list H-222

Fire Truck for Narrow Aisles. A "pint-size" fire truck for fighting fires inside plants is capable of negotiating narrow aisles. According to plant needs, extinguishing agents are dry chemical, carbon dioxide, and water. Available accessories include ladders, utility bar, light, hose, portable fire extinguishers, and extra nozzles. All are mounted with panic-proof quick release brackets. Storage room for fire blankets, boots, air masks, coats, and a first aid kit.

Ansul Chemical Co., Marinette, Wis.

Do you want more data? Write supplier or use card on page 187; list H-223

Solenoid Pilot-Operated Control Valves. Capable of handling over 600 cycles per minute, with a life of over 25 million cycles, the "Speed King" series of valves is equipped with manual override to permit valve operation when the current is off. Valves are electrically inoperative when the solenoid covers are removed. Pilot solenoid coils for operation on either a-c or d-c of any voltage.

Valvair Corp., Morgan and Beardsley Aves., Akron 11, Ohio.

Do you want more data? Write supplier or use card on page 187; list H-224

New ... *and* worth checking!

NAPHTHOL AS-LG

from bu ALLIANCE

Test any significant feature of our new Naphthol AS-LG ... you'll recognize at once the striking quality of this new domestic product.

Naphthol AS-LG is the latest of our specialties created to fill the needs of Fast Color users. Visibly clean and bright, pure in quality, uniform and dependable, our new Naphthol AS-LG produces rich, true colors in the yellow to brown range on cotton and rayon.

Yarns in beam, package and warp form dyed with Naphthol AS-LG couplings are fast to chlorine and peroxide. These combinations are especially recommended for checks, ginghams, chambrays and knitted goods.

Revealing comparison tests are the most convincing proof. Write or call our Spartanburg laboratory for a sample or a technical representative to discuss and demonstrate specific formulations.

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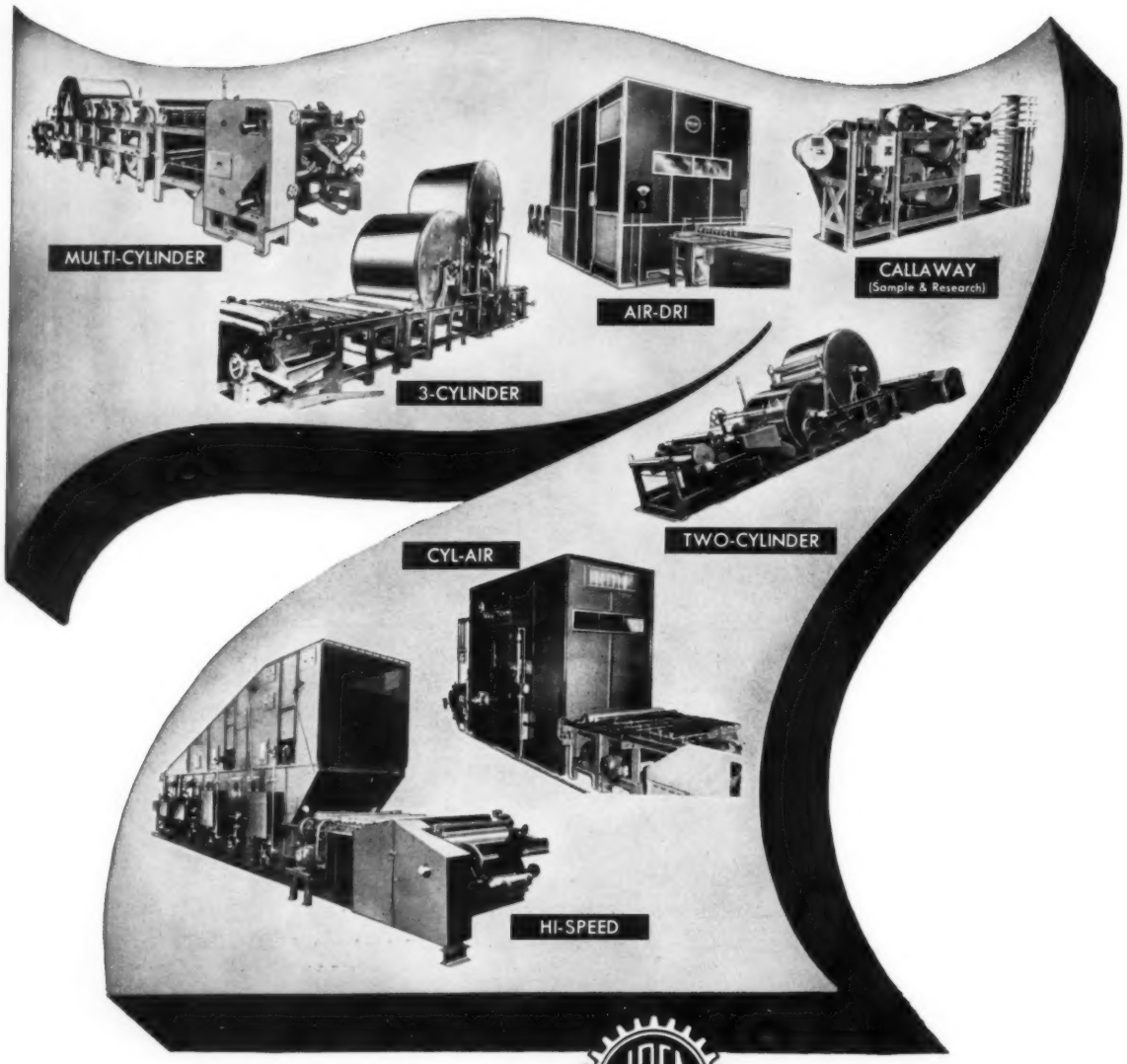
BLACKMAN-UHLER CO., SPARTANBURG, S. C.
ALLIANCE COLOR & CHEMICAL CO., NEWARK, N. J.
DIVISIONS OF THE ANDOVER COMPANY

STOCKS AT: CHATTANOOGA, TENN., GREENSBORO, N. C., CHARLOTTE, N. C., COLUMBUS, GA., PROVIDENCE, R. I.

ONLY WEST POINT *makes all*



SLASHERS

Only West Point can make an impartial recommendation, because only West Point makes both cylinder and hot air slashers. Whether for the lightest gauze or the heaviest sheeting . . . for natural or synthetic fibers . . . for samples or research . . . West Point can furnish the right slasher.

WEST POINT FOUNDRY & MACHINE COMPANY
WEST POINT, GEORGIA

Use this opportunity to keep abreast of new information dealing with machinery, equipment, supplies and services available to your mill.
To obtain more information on advertisements, print the name of the advertiser in the space provided on the card below.
Free booklets and more information on new equipment items may be had by entering their key numbers in the space designated for this use.
This service is made possible by the advertisers of TEXTILE INDUSTRIES as an aid to mill men who want to keep well informed on new developments in the industry. We cannot, however, extend this service to you unless you print or write legibly your name and position, the name of your firm, and its address on the card.
Four cards are provided in case others in your plant would like information . . . and TEXTILE INDUSTRIES pays the postman!

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HELPFUL BOOKLETS FREE!

8-1 SCHAUB "03" DEAERATORS. Bulletin No. 1300 explains how modern design, a simplified principle and advanced engineering now bring effective deaeration at a budget price. Write Fred H. Schaub Engineering Co., 2110 South Marshall Blvd., Chicago 23, Illinois.

8-2 KNIT UNDERWEAR. New, colorful six-page folder No. 254 describes how knit undergarments can be manufactured better, faster, and at lower cost. Write Union Special Machine Co., 400 N. Franklin St., Chicago 10, Illinois.

8-3 ROLLER CHAIN AND SPROCKET WHEELS. 148 pages of valuable information includes sections on stock drives, installation and maintenance, lubrication, conveyor chains, casings and other such subjects. Write Link-Belt Co., Prudential Plaza, Chicago 1, Illinois.

8-4 IMPROVED MATERIALS HANDLING. Booklet entitled "Materials in Motion. . .by National", describes the use of lightweight vulcanized fibre containers to increase efficiency, reduce costs and simplify methods of materials handling. Write National Vulcanized Fibre Co., 1056 Beech Street, Wilmington 99, Del.

8-5 COLLECTO-VAC. Catalog 30A describes Bahnson's new development, COLLECTO-VAC, for collecting lint, fly and broken ends. Write The Bahnson Co., Winston-Salem, N. C.

8-6 SAFE HANDLING AND UNLOADING OF HYDROGEN PEROXIDE. A specially prepared hydrogen peroxide wall chart, that clearly and concisely outlines the safety rules to be followed in handling the product, is offered to users of hydrogen peroxide by the Solvay Process Division, Allied Chemical & Dye Corp., 61 Broadway, New York 6, New York.

8-7 SAFE HANDLING OF CHLORINE AND CAUSTIC SODA. Two new illustrated wall charts presenting up-to-date instructions for the safe handling of chlorine and caustic soda have been prepared for users and handlers of these chemicals. Write Industrial Chemicals Div., Olin Mathieson Chemical Corp., Baltimore 3, Maryland.

8-8 UNDERHUNG TYPE OVERHEAD CRANE. A complete line of underhung overhead cranes with a broad range of applications is illustrated and described in this informative, easy-to-use catalog. Bulletin U-200-1. Write Chicago Tramrail Corp., 1330 South Kostner Ave., Chicago 23, Ill.

8-9 LOOM HARNESS REEDS. Pamphlet describes in detail the following reeds: All Metal Reeds, Pitch Band Reeds, All Metal Spring Baulk Reeds, All Metal Plush Reeds, All Metal Ribbon Reeds, and special Reeds for Warner & Swasey Looms. Write Steel Heddle Mfg. Co., 2100 West Allegheny Ave., Philadelphia 32, Pa.

8-10 EFFECT TWISTING DEVICE. Booklet describes how the Effect Twisting Device, now controlled by Electronics, presents a remarkable improvement with regard to the effect twisting operations. Write Berliner Textile-Maschinen, G.M.B.H., Berling N. 31, Scheringstr. GERMANY.

8-11 ROOF VENTILATORS. Bulletin A-112A contains complete information on the revolutionary Reversible Roof Ventilator with sizes, specifications, performance data, and dimensional drawings. Write The Hartzell Propeller Fan Co., Pique, Ohio.

8-12 CARBON STEEL TUBING. Four-page technical folder TDC-142A furnishes condensed data on the mechanical and physical properties of seamless and welded carbon steel pressure tubing. Write The Tubular Products Div., Babcock & Wilcox Co., Beaver Falls, Pa.

ELEVATED STEEL TANKS

• For more than a century, COLE elevated tanks have been helping provide fire protection and adequate water reserve for the textile industry.

Capacities from 5,000 to 2,000,000 gallons —and covering designs ranging from standard hemispherical self-supporting bottom to spherical tank on tubular tower. Send us your inquiry, stating capacity, height to bottom and location. Write for *Tank Talks.*

R. D. COLE MANUFACTURING CO. COLE NEWNAN, GEORGIA

Elevated Tanks, Pressure Vessels, Chemical and Processing Equipment from Aluminum, Stainless and Carbon Steel, Monel and Other Alloys.

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BANDS
for your
ROVING CANS

BANDS OF UNITED ELASTIC WEBBING FEATURE

- long wear and service
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- well-made, firmly-woven construction
- securely-sewed joinings
- bright, solid, non-fading colors
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- easily recognized at a distance
- easily removed and transferred

If you will specify the can diameter; and the color, width and quantity of bands desired; we will submit samples and quote prices.

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EASTHAMPTON, MASS.
Sales Agent:
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P. O. Box 906, Columbus, Georgia

Mill saves two hours daily—cleans drying cans with Oakite HOT-SPRAY UNIT

In a New England mill, drying vats for dyed fabrics were formerly cleaned with caustic, applied by a cloth-wrapped broom. It was slow work. Only the first four stainless steel vats were cleaned between dye changes – the top cans couldn't be reached.

Now, with mechanized cleaning, using the Oakite Hot-Spray Unit, it's fast and easy. Two hours a day are saved on the first four stainless steel cans alone, and they've never been so clean. The top cans? They're a cinch with the Oakite Hot-Spray Unit. And equal savings are possible in the starch room and in cleaning dye vats. Call your local Oakite Technical Service Representative, or write to Oakite Products, Inc., 26C Rector Street, New York 6, N. Y.

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GENERAL, ECONOMICAL MANAGEMENT . . .

3. HOW BEECHCRAFT SAVES YOU TIME AND MONEY — Booklet available from Southern Airways Company shows how Beechcraft executive airplanes can save executives time and money. Write — SOUTHERN AIRWAYS CO., Atlanta Airport, Atlanta, Ga.

6. FACTORING SERVICE — Booklet by Trust Company of Georgia gives advantages of factoring, including also information on general banking and pension plans. — TRUST COMPANY OF GEORGIA, Atlanta, Ga.

8. TEXTILE RESEARCH AT AMERICAN VISCOSE — Color booklet tells the story of the Textile Research Department which is, in effect, a many-sided textile mill. — AMERICAN VISCOSE CORP., 350 Fifth Avenue, New York 1, N. Y.

11. "WHERE DID THEY HIT PAY DIRT?" — Booklet describes how many manufacturing concerns have come South and why they found it profitable. Gives industrial advantages of the Southeast. Write CENTRAL OF GEORGIA RAILWAY, Industrial Development Department, 501 Rhodes Haverty Bldg., Atlanta 3, Georgia.

15. NEW INDUSTRIAL FIBER — Technical bulletin now available on Fortisan-36, new industrial fiber by Celanese. Uses text, charts and diagrams to present technical properties, characteristics and recommendations for processing. — TEXTILE SALES DEPARTMENT, Celanese Corporation, Charlotte, N. C.

17. A FAIR DAY'S PAY AND IN RETURN A FAIR DAY'S WORK — 8-page booklet outlining the services offered to industry for the proper utilization of labor, material and equipment, and the resulting advantages for both labor and management. — AMERICAN ASSOCIATED CONSULTANTS, INC., 250 Park Ave., New York, N. Y.

18. RAYON—MILE BY MILE — Color booklet describes how Industrial Rayon Corporation produces rayon mile by mile which is perfect inch by inch. — INDUSTRIAL RAYON CORP., Fifth Ave., New York 18, N. Y.

22. THE WONALANCET WAY — Is the title of an editorial booklet published five times a year and deal with current problems which appear worthwhile at the time they are written. — WONALANCET COMPANY, 128 Burke St., Nashua, N. H.

23. TEXTILE STEELS — Six booklets are available from Atlantic Steel Company which will prove valuable to persons concerned with the purchase or use of steel. — ATLANTIC STEEL CO., P. O. Box 1714, Atlanta 1, Ga.

24. THE CHEMSTRAND NYLON STORY — Booklet describes one of the greatest industrial ventures of the textile industry in the South — the birth and growth of Chemstrand Nylon. — CHEMSTRAND CORP., 350 Fifth Ave., New York 1, N. Y.

PLANT & PLANT MAINTENANCE . . .

102. "TANK TALK" — Sixteen page booklet of illustrations showing various types of elevated steel tanks constructed and erected by manufacturers as well as stand pipes, reservoirs, storage and high pressure vessels; cylinders, along with helpful technical data. Also a list of what a few of the cotton mills, etc., said — R. D. COLE MANUFACTURING COMPANY, Newnan, Ga.

103. HUMIDIFICATION, EVAPORATIVE COOLING — Bulletins available displaying AMCO automatic self-cleaning atomizers, controls, and evaporative cooling equipment. — AMERICAN MOISTENING CO., 260 W. Exchange St., Providence, R. I.

104. STORAGE WATER HEATING — Isotherm Storage Water Heating Bulletin No. 923 on hot water heating to stretch boiler capacity. Write FRED H. SCHAUB ENGINEERING CO., 2110 South Marshall Blvd., Chicago 23, Illinois.

105. CASTERS AND WHEELS — Catalog gives complete description on full line of industrial casters and wheels. Features patented "LOCKWELD" Steel Casters Without A Kingpin" both Single and Double Ball Race. — THE FAIRBANKS CO., 393 Lafayette St., New York 3, N. Y.

106. FINNELL COMBINATION SCRUBBER-VAC —Illustrated literature gives complete specifications and describes various methods of combination-machine-scrubbing, including method recommended for cleaning oily floors. — FINNELL SYSTEMS, INC., 1300 East St., Elkhart, Indiana.

111. CERTIFIED CLIMATE AIRCHANGER SYSTEM — Bulletin describes Certified Climate Airchanger System as used with direct humidification for partial or complete air conditioning. — PARKS-CRAMER CO., Fitchburg, Mass.

112. HARDWOOD FLOORING — Booklet entitled "Specialist in Manufacturing of Hard Maple Flooring for textile plants." For complete information, write — CONNOR LUMBER & LAND COMPANY, P. O. Box 810, Wausau, Wisconsin.

113. COTTON MILL EQUIPMENT — This book traces pictorially the steps in processing raw cotton into finished cloth. It shows the equipment needed for all phases of production, as well as containing a "Useful Information" section on Power Factor Correction, Lighting, Circuit Protection, etc. — WESTINGHOUSE ELECTRIC CORP., 511 Wood St., Pittsburgh 30, Pa.

114. PENETRATING WOOD FINISH — Bulletin gives applications, used and.. application specification of floor seals for textiles. — E. I. DU PONT DE NEMOURS & CO., INC., FINISHES DIVISION, Wilmington, Delaware.

115. FOAMGLAS — Illustrated brochure features information on how the use of Foamglas cellular glass insulation solved the severe insulating problems of leading users. — PITTSBURGH CORNING CORP., One Gateway Center, Pittsburgh 22, Pa.

116. STOP CORROSION — Details on speed Rex paint for metal woo dand concrete maintenance solving condensation problems. — TRUSCON LABORATORIES, Box 69, Milwaukee Junction, P. O. Dept. T, Detroit 11, Mich.

117. CLEANING SYSTEMS — Booklet entitled "Certified Climate and Cleaning Systems" gives latest information on system. Products and uses fully discussed with two story layout of Certified Climate central station air conditioning system. — PARKS-CRAMER CO., Fitchburg, Mass., and Charlotte, N. C.

118. LIQUIDATION INFORMATION — Information available on how to profitably dispose of mill properties being liquidated. Tells how Comer will buy, sell and relocate industry in your former site. — COMER MACHINERY CO., 684 W. Peachtree St., Atlanta, Ga.

120. STAINLESS STEEL FOR TEXTILES — 40-page booklet gives applications and advantages of stainless in textile plant equipment of all types. — ALLEGHENY LUDLUM STEEL CORP., Dept TI-71, Oliver Bldg., Pittsburgh 22, Pa.

121. CRANES AND HOISTS — Portfolio of bulletins describes the complete line of Shepard Niles traveling hoists and floor or cab operated traveling cranes. — SHEPARD NILES CRANE & HOIST CORP., Montour Falls, N. Y.

122. TEXTILE MILL CLEANING GUIDE — Useful book by Oakite prescribes methods and means of proper mill cleaning and maintenance. — OAKITE PRODUCTS, 26C Rector St., New York 6, N. Y.

123. ROLLER BEARINGS FOR TEXTILES — Easy to read non-technical bulletin describes where and how Hyatt Roller Bearings are employed for more profitable textile production. — HYATT BEARINGS DIV., GENERAL MOTORS CORP., Harrison, N. J.

There's only one basic reason for preferring

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Actually, of course, there are many reasons for the superiority of Eclipse Bobbin Holders. Easy installation, reduced maintenance requirements (resulting in substantial savings in labor costs), resistance to rust, durability (some holders in operation for more than ten years) and many, many more. Put them all together, though, and they add up to one basic fact: with Eclipse, you get *better fabrics at lower cost.* And what better reason could there be for the amazing sales increase Eclipse has enjoyed in the past year. The textile industry has discovered that the use of old-fashioned wooden skewers is inefficient and costly. The modern way to spin cloth is with Eclipse Bobbin Holders. Our increased plant capacity now assures you of prompt delivery. Write or call Eclipse Machine Division today.

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HELPFUL BOOKLETS FREE!

125. STATIC ELIMINATION — Bulletin by Simco describes effective, simple, safe and inexpensive means of eliminating static. — SIMCO COMPANY, 980 Walnut St., Lansdale, Pa.

126. TOLEDO TRUCK SCALES — Booklet tells how mills may save on installation and throughout long, useful life of Toledo Truck Scales. Gives capacities and advantages. — TOLEDO SCALE COMPANY, Toledo 1, Ohio.

127. SOLENOID VALVES — Bulletin "V" lists sizes from ⅛ inch to 3 inches; valves for normally open or closed service; stainless steel or Jenkins disc seats; three way solenoid valves, etc.; typical installations. — THE JOHNSON CORP., Three Rivers, Mich.

130. STAINLESS STEEL FABRICATION — Illustrated colorbooklet by Sims describes the advantages of stainless steel with regard to textile operations. Also includes information on ventilating and drying, slasher exhaust ,and materials handling systems. — SIMS METAL WORKS, West Point, Ga.

131. "AIR-PROCESSING" — Set of three bulletins showing real meaning of the term, where it can be used, the requirements for a successful system, etc. — J. O. ROSS ENGINEERING CORP., 444 Madison Ave., New York 22, N. Y.

132. AUTOMATIC BOILERS — Bulletin describes POWER-MASTER Automatic Boilers for light and heavy oil; gas or combination Gas-Oil Firing. Complete table of data. — ORR AND SEMBOWER, INC., Reading, Pa.

133. AIR LINE FILTERS — Catalog describes various air line filters for removal of oil, corrosive moisture, abrasive pipe scale, rust, and other solids from compressed air lines. Write for Catalog No. 700. — C. A. NORGREN CO., 3450 So. Elati St., Englewood, Colo.

134. CUT WATER TREATMENT COSTS — Folder presents Oakite Airefiner No. 52, a mildly alkaline compound, that is said to control scale, slime, algae and corrosion. Write OAKITE PRODUCTS, INC., 126C Rector St., New York 6, N. Y.

135. COLOR CONDITIONING — Booklet illustrated in color describes how Du Pont color conditioning puts color to work for you. Many ideas on safety brought out which color can aid. — E. I. DU PONT DE NEMOURS & CO., INC., FINISHES DIV., Wilmington 98, Delaware.

138. METAL CONVEYOR BELTS — Recent catalog describes and illustrates Ashworth's entire range of manufacture, including the new Flat Wire Belt design and application, along with their Woven Wire Constructions and Positive Drive Chain Edge belts. —ASHWORTH BROS. INC., METAL PRODUCTS DIV., Fall River, Mass.

141. SEAMLEX METAL HOSE — New illustrated bulletin No. 955 gives essential information on Seamlex Bronze Hose and diesel exhaust hose. Write SEAMLEX CO., INC., 41-23 24th St., Long Island City, N. Y.

143. UNIT HEATER — The latest improvements, specifications, and complete performance data for Herman Nelson horizontal and vertical unit heaters have been written into a new 36-page product bulletin by the AMERICAN AIR FILTER CO., INC., 215 Central Ave., Louisville, Ky.

146. FUNCTIONAL GLASS BLOCK DATA — Folder shows in detail daylighting function of Light-directing and Light-diffusing Functional Glass Blocks. — PITTSBURGH CORNING CORP., 307 4th Ave., Pittsburgh 22, Pa.

150. RIHCO HUMIDIFIERS AND COOLING SYSTEMS — Bulletin describes new atomizers with construction lessening air consumption in humidifier systems, evaporative cooling systems. — ALDRICH MACHINE WORKS, Greenwood, S. C.

151. INDUSTRIAL BRUSHES — Illustrated booklet of industrial brushes featuring textile usage on shears, printing machines — also flock, raising and cylinder brushes. —M. W. JENINS SONS, INC., 444 Pompton Ave., Cedar Grove, N. J.

153. LAMINATED TEXTILE PLASTICS — Booklet by Synthane Corporation shows variety, application, and advantages of laminated plastic parts and supplies for the textile industry. — SYNTHANE CORPORATION, TEXTILE DIVISION, Oaks, Penna.

161. AUTOMATIC CLEANING EQUIPMENT — Complete booklet by American MonoRail shows working details and advantages of the Tri-Rail Cleaner, a great improvement over the original unit. — AMERICAN MONORAIL CO., 13107 Athens Ave., Cleveland 7, Ohio.

162. MODERN METHODS OF TEXTILE FLOOR MAINTENANCE — Illustrated treatise on the history of floor cleaning in textile plants and a detailed description of new methods for reducing floor cleaning costs as well as preserving textile mill floors.— G. H. TENNANT COMPANY, 2530 N. Second St., Minneapolis 11, Minn.

173. BLOWERS AND EXHAUSTERS — Bulletin No. 3014-D describes types "E" and "RE" electric blowers and exhausters. Uses and full description of each with detail drawings. — BUFFALO FORGE CO., 490 Broadway, Buffalo 5, N. Y.

174. PAINT STRIPPING BOOKLET — Illustrated booklet providing helpful data on latest materials and methods for simplified stripping of paint. Methods described include: (1) steam gun; (2) hot flow-on; (3) cold spray; and (4) tank immerston. — OAKITE PRODUCTS, INC., 22 Thames St., New York 6, N. Y.

181. AIR FILTRATION — Bulletin 234 describes and illustrates the Auto-Airmat, which is the Automatic Dry-Type air filter. Principle of operation, performance, characteristics, construction and installation fully discussed. — AMERICAN AIR FILTER COMPANY, INC., 275 Central Ave., Louisville 8, Ky.

POWER TRANSMISSION, MOTORS, BELTING, LUBRICATION . . .

203. TREADED LEATHER BELTING — this 16 page booklet describes Houghton's line of patented, specially treaded leather belting for all types of power transmission. Booklet includes valuable engineering and maintenance section. — E. F. HOUGHTON & CO., Philadelphia, Pa.

205. MAINTENANCE OF VARIABLE SPEED DRIVES — Bulletin describes and illustrates the simple but comprehensive program available to keep Reliance V-S Jr. Drives in operation at peak efficiency.—RELIANCE ELECTRIC & ENGINEERING CO., 1088 Ivanhoe Rd., Cleveland 10, Ohio.

208. CUTLER-HAMMER MOTOR CONTROL — Booklets describe the combination starters for the textile industry, for roving frames and spinning frames, loom switch and Cutler-Hammer Motor Control for textile cards. — CUTLER-HAMMER, 315 N. 12th St., Milwaukee, Wisconsin.

209. STEEL PULLEYS — Pictorial review of American Steel Pulleys, their manufacturing processes and some of their end uses. Textile pulleys are featured. — AMERICAN PULLEY CO., 4200 Wissahickon Ave., Philadelphia 29, Pa.

211. LUBRICANTS FOR TEXTILES — Working samples available of Ben Boy Bearing Lubricants, Spindle Oils, Non-Melting Oils, Twister Lubricants. — GEORGIA-CAROLINA OIL CO., Box 101, Macon, Ga.

212. GATES TEXTILE ACCESSORIES — Handy pocket-size catalog BHM-7, fully illustrated, gives specifications of Gates textile accessories including pickers, lug straps, check straps, cone belts, evener belts, harness straps, take-up roll covering, and others. — THE GATES RUBBER COMPANY, 1001 Broadway, Denver 17, Colo.

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222. AUTOMATIC PRODUCTION CONTROL — Booklet by Reeves Pulley Company, shows application of many automatic processes and controls to the textile industry. Well illustrated, it contains engineering data quite useful to anyone interested.—REEVES PULLEY COMPANY, Columbus, Indiana.

223. LUBRICATION OF BEARINGS — Booklet entitled "Lubrication and Maintenance of Ball and Roller Bearings" gives helpful list of do's and don'ts to prolong bearing life. Also includes valuable information on storage and handling of lubricants. — NEW YORK & NEW JERSEY LUBRICANT CO., 292 Madison Ave., New York 17, N. Y.

225. HYDRAULIC SLASHER DRIVES — Color booklet by Vickers shows how hydraulic drives provide an economical approach to improved slasher operation. Has detailed pictures and enumerates advantages. — VICKERS, INC., 1036 Peachtree St., Atlanta, Ga.

228. NEW NEEDLE OIL — Booklet by Shell gives facts on Vexilia Oil 117, which gives 12 times more rust protection during operation and during shut-down periods. — SHELL OIL CO., 50 West 50th St., New York 20, N. Y.

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256. METERED LUBRICATION. Booklet entitled "From Fiber to Fabric." Shows advantages of central lubrication systems as applied to various departments of textiles. Write — BIJUR LUBRICATING CORP., Rochelle Park, N. J.

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INSTRUMENTS, STEAM SPECIALTIES . . .

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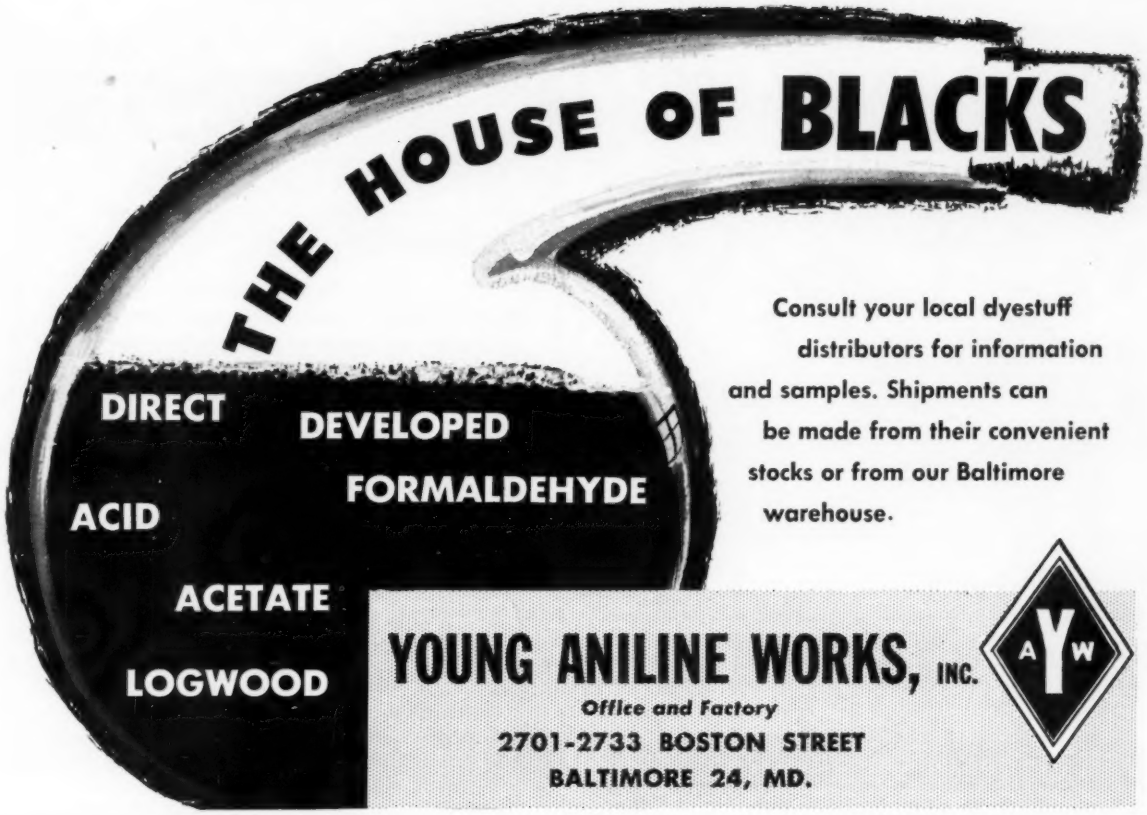

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433. PERMANENT PLATE MAGNETS — Bulletin shows how Eriez Magnetic Separators prevent fires and protect machinery from tramp iron in all types of textile mills. — ERIEZ MFG. CO., Erie, Pa.

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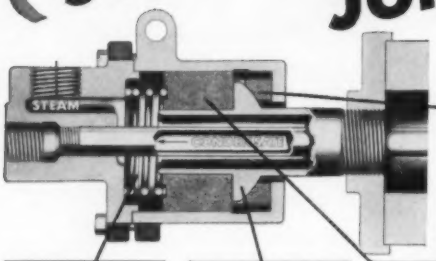

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474. BALL BEARING COMB BOXES — Southern States Equipment Corp. offers literature on their famous C-1 Ball Bearing Comb Boxes. Description, working principle, cut-a-way views shown.—SOUTHERN STATES EQUIPMENT CORP., Hampton, Ga.

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476. TEXTILE FIBER OPENER FOR COTTON, SYNTHETICS, WOOL — New brochure by Cen-Tennial Cotton Gin Co. gives complete data on the Cen-Tennial Opener which incorporates improvements on the original SRRL Opener. Complete operating procedure is described. — CEN-TENNIAL COTTON GIN CO., Columbus, Ga.

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WEAVING, SLASHING . . .

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506. SLASHING HINTS — A 20-page booklet offering helpful hints on warp sizing. Subjects: Size cooking equipment, section beam tension, sizing selvages, cooking, use of split rods, weighing for the mix, tips on cooking equipment, storage in kettles, etc. — SEYDEL-WOOLLEY & CO., 748 Rice St., N.W., Atlanta, Ga.

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510. CONTROLLED SIZING — Brochure in color describes the legend, operation and specification of the new Griffin Size Machine. Features most important basic improvements in size machines in many years. — IRA L. GRIFFIN & SONS, P. O. Box 1576, Charlotte, N. C.

511. ALUMINUM BEAMS — Catalog No. 1-21 describes Hayes magnesium and aluminum specialties for the textile industry. Illustrates this company's beams that are one-third the weight of conventional types. — HAYES INDUSTRIES, INC., Jackson, Mich.

514. THE STORY OF STARCHES — Semi-technical booklet tells the story of starches and information on how they are produced, the creation of new specialty starches, the unique "man-made" starch derivatives, and the handling of starches. — NATIONAL STARCH PRODUCTS, INC., 270 Madison Avenue, New York 16, New York.

515. WARPING, SLASHING, WEAVING ARNEL YARNS — 8-page booklet preliminary information on Arnel Triacetate Yarns. — CELANESE CORP. OF AMERICA, TEXTILE DIVISION, Box 1414, Charlotte, N. C.

517. LOADING SYSTEM — Bulletin 417, on pneumatic loading system for Saco-Lowell slasher size box squeeze rolls, contains installation photo, features, specifications, and prices. — THE FOXBORO COMPANY, Foxboro, Mass.

519. ALIGNING LAYS — Informative booklet gives setting instructions for aligning lays. Complete treatment, including step-by-step drawings.—DRAPER CORPORATION, Hopedale, Massachusetts.

520. HELP ON SIZE PROBLEMS — Information from Southern Sizing Company outlines how their superior sizing compounds and superior service can help make your mill run better. — SOUTHERN SIZING CO., East Point, Ga.

521. STEEL WARP BEAMS — 20 page Catalog No. 45 illustrating Standard and Special Purpose Warp Beams for the weaving industry, both broad-loom and narrow fabrics. Also Textile Machinery Specialties. — MILTON MACHINE WORKS, INC., Milton, Pa.

522. PENFORD GUMS IN TEXTILES. — Brochure tells how the wide range of viscosities and the excellent properties of Penford Gums make them desirable for warp sizing spun yarns. — PENICK & FORD, LTD., INC., 420 Lexington Ave., New York 17, N. Y.

525. STAINLESS DRY CANS — Bulletin describes advantages of Unistel Stainless Dry Cans including details of construction. Profusely illustrated. — UNISTEL TEXTILE MACHINE CORP., 225 Westchester Avenue, Port Chester, N. Y.

526. SACO-LOWELL POSITROL SLASHER — Color Brochure gives 14 advantages of the Saco-Lowell Positrol Slasher. Includes photographs, cut-away drawings, sectional pictures, diagrams, Microphotographs. — SACO-LOWELL SHOPS, 60 Batterymarch St., Boston 10, Mass.

530. ROTARY UNIONS — New catalog shows how to cut costs, get better sealing on can dryers, slashers, calenders, etc. Catalog No. 500 entitled "Where Good Connections Count." — PERFECTING SERVICE COMPANY, Atando Ave., Charlotte, N. C.

537. WEST POINT'S HOT AIR SLASHER — Bulletin describes advantages and capacities of new hot air slasher by West Point Foundry and Machine Works. Detailed specification included. — WEST POINT FOUNDRY AND MACHINE WORKS, West Point, Georgia.

538. AIR SLASHER DRYER — Pamphlet by Proctor & Schwartz shows construction and operating details of the Proctor Air Slasher Dryer. Advantages listed and cut-away view shown. — PROCTOR & SCHWARTZ, INC., 7th St. and Tabor Rd., Philadelphia 20, Pa.

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545. NOPCO CHEMICAL DATA SHEETS — Now available are Nopcostats, Nopco Sizes N and D. Important points in Warp Sizing. Interpretation of Analysis, Wetting Agents, Balanced wool and worsted oils, Acetate warp sizing. Viscose warp sizing. Rayon soaking. — NOPCO CHEMICAL CO., Harrison, N. J.

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603. EMCO ROTARY CUTTER WINDER — Bulletin gives applications, sizes and exclusive features.— H. W. BUTTERWORTH & SONS CO., Bethayres, Pa.

604. DYEING, BLEACHING AND DRYING EQUIPMENT — Excellent color brochure by Morton describes their complete line of dyeing, bleaching and drying equipment for cotton, wool and synthetics. — MORTON MACHINE WORKS, 1718 3rd Ave., Columbus, Ga.

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609. WET PROCESSING MACHINERY — Complete file of bulletins on Riggs and Lombard Wet Processing Machinery available. Write for catalog index sheet giving summary. — RIGGS AND LOMBARD, INC., Suffolk Street, Lowell, Mass.

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632. LUG STRAP WASHERS — Series 1-C illustrated bulletin detailing right and wrong application and use of washers. — E. H. JACOBS NORTHERN DIV., Danielson, Conn.

636. NAPPERS FOR TREATING ANY FABRICS — Bulletin gives complete details on the Muller Tri-Napping Machine with 24, 30, or 36 rollers. Dimensions and weights included. — FRANZ MULLER, M. Gladbach, Germany.

637. BALL BEARING TURN TABLE — Leaflet describing this 48 inch diameter steel turn table for use in mills where the cloth is delivered in rope form to trucks and the trucks are placed in position ahead of a Scutcher or cloth opening machine. Advantages discussed. — BIRCH BROTHERS, INC., 32 Kent St., Somerville, Mass.

639. ROTARY DYEING MACHINE — Booklet No. 425 illustrating the features of these stainless steel machines used for dyeing hosiery, hats, gloves, socks, etc. — SMITH, DRUM & CO., Allegheny Ave. at 5th St., Philadelphia 33, Pa.

642. SELVAGE OR BACK MARKING MACHINE —Complete specifications and performance data on a new fully automatic marking machine available from Kaumagraph. — KAUMAGRAPH CO., Wilmington 99, Delaware.

643. SURFACE-ACTIVE AGENT — Bulletin gives characteristic properties, suggested applications, etc. of the Nonionic Octylphenoxyethanol Triton Surface-Active Agents. — ROHM & HAAS CO., SPECIAL PRODUCTS DEPT., Philadelphia 5, Pa.

644. DYEING, BLEACHING, FINISHING BULLETINS — Saturator for roped goods, J-Box (for Becco process), J-Box (for duPont Process), Continuous Bleaching Ranges, Carrier Reels, Drum-Type Plaiter are available from WIESNER-RAPP CO., INC., 1600 Seneca Street, Buffalo 10, New York.

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653. GUIDERS AND TENSION DEVICES — Illustrated and described are the Mount Hope Precision Guiders and open width Tension Devices used for accurate, straight line guiding of open width goods. Bulletin 84-PG. — MOUNT HOPE MACHINERY CO., Fifteen Fifth St., Taunton, Mass.

656. GET RID OF WRINKLES — Brochure shows how Mount Hope "free wheeling" expanders keep fabrics smooth, at full width, without distortion whenever goods are rolled, nipped, dyed, washed, dried or batched. — MOUNT HOPE MACHINERY CO., Taunton, Mass.

657. PROCESSING ARNEL FABRICS AND BLENDS — Bulletin provides information on dyeing, printing, finishing and heat treating Arnel. Text, charts and diagrams included. Write for No. TD-15. CELANESE CORP. OF AMERICA, Textile Division, Marketing Dept., Charlotte, N. C.

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660. MULTI-STAGE WASHER — Bulletin No. T-111 by Wiesner-Rapp illustrates and describes the versatility, accessibility, efficiency and compactness of the Multi-Stage Washer. Write THE WIESNER-RAPP CO., INC., 1600 Seneca St., Buffalo 10, N. Y.

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701. MAGNESIUM APPLICATIONS — Case history information on magnesium application in the textile field, published bi-monthly with latest developments in the magnesium industry. — DOW CHEMICAL CO., Midland, Mich.

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775. ETHANOLAMINES — Book describes monoethanolamine, diethanolamine, and triethanolamine, listing their applications, chemical and physical properties, physiological properties, etc. — NITROGEN DIVISION, ALLIED CHEMICAL AND DYE CORPORATION, 40 Rector St., New York 6, N. Y.

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801. THE WILDMAN SINGLEHEAD FULL-FASHIONED HOSIERY MACHINE — Literature on request from the WILDMAN MFG. CO., FULL FASHIONED DIVISION, Norristown, Pa.

803. TIPS ON SEAMING NYLON STRETCH HOSIERY — Pamphlet lists in detail observations and suggestions on seaming nylon stretch hosiery prepared by Union Special as a result of findings of engineers in the field. — UNION SPECIAL MACHINE CO., 407 N. Franklin St., Chicago 10, Ill.

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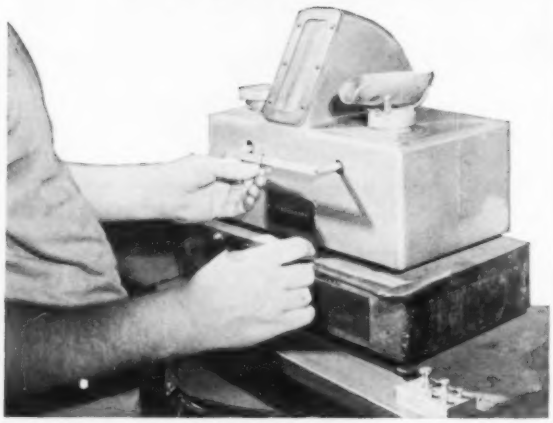

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828. THE KIDDE KNITTER — Bulletin describing this newest in Raschel-type warp knitting machines and higher production attained with it. — KIDDE MANUFACTURING CO., INC., Farrand St., Bloomfield, N. J.

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924. BUTT-TACKING SEWING MACHINE — Booklet describes an operating installation of the Merrow single thread butt-tacking sewing machine. Gives performance data, and advantages of butt-tacking. — THE MERROW MACHINE COMPANY, 28 Laurel Street, Hartford, Connecticut.

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1020. "HOW TO SEAL CORRUGATED SHIPPING BOXES" — 24-page publication features new format, illustrations and text material, thoroughly revised to explain all facets of modern package sealing. Write HIND & DAUCH, Sandusky, Ohio.

1021. CORRUGATED COSTAINERS — Brochure by Gaylord describes Multi-Unit and Bulk Containers which have been adapted for the textile field. — GAYLORD CONTAINER CORP., 111 N. 4th St., St. Louis 2, Mo.

1022. INDUSTRIAL TRACK EQUIPMENT — Color booklet describes SAFE-RAIL track developed as a supplement to the ZIG-ZAG power conveyor. Complete engineering data included. — RICHARDS-WILCOX MFG. CO., Aurora, Ill.

1030. CDF RECEPTACLES — This 32-page catalog, R-11, profusely illustrated in color, shows Continental-Diamond's line of boxes, trucks, cans, barrels, baskets and trays. Complete description and specifications are given on each item. — CONTINENTAL-DIAMOND FIBRE CO., Newark 11, Del.

1033. STRESSES ON OVERHEAD TRACKS — Booklet describes in detail stresses developed in various type tracks used for overhead materials handling systems. Track peening also covered. — CLEVELAND TRAMRAIL DIV., Wickliffe, Ohio.

MISCELLANEOUS . . .

1102. BALING PRESSES — An illustrated folder describing this manufacturer's complete line of balers for all materials. Both downstroke and upstroke models. — ECONOMY BALER CO., Ann Arbor, Mich.

1103. UNBRAKO SCREWS — Illustrated 16-page booklet No. 570 gives data on Unbrako hollow set screws, with knurled point, self-locking features. Includes miscellaneous screw and locking nut data. — STANDARD PRESSED STEEL CO., Jenkintown, Pa.

1105. SHADOGRAPH WEIGHING DEVICES — Bulletins describe scales for weighing, dyestuffs, cotton samples, wool yarn, cones of yarn. Pictures and complete information on each type of scale included. — EXACT WEIGHT SCALE CO., Columbus 8, Ohio.

1111. BRUSHES — A 26-page booklet is now available which describes and illustrates this manufacturer's line of brushes for the textile industry. —GASTONIA BRUSH COMPANY, Gastonia, N. C.

1112. THE RANDOM WEB PROCESS — Bulletin No. 101 describes the Rando-Webber and Rando-Feeder machines, and discusses the origin and development of the Random Web process which produces a non-oriented web suitable for processing into felts, wadding, heavy mats and non-woven fabrics on a continuous basis. Engineering data and cut-away diagrams. —CURLATOR CORPORATION, TEXTILE DIVISION, 501 W. Commercial St., East Rochester, N. Y.

1113. MACHINE KNIVES — Catalog and price sheets describing this company's line of knives for use on textile machinery. — TAYLOR-STILES & CO., 21 Bridge St., Riegelsville, N. J.

1115. TEXTILE WRAPPING MACHINES — Brochure describing automatic wrapping machines for various types of textile products, including the new Hayssen V-Type Underfold, most protective package made. — HAYSSEN MANUFACTURING CO., Sheboygan, Wisconsin.

1116. LITTLE PACKAGING LIBRARY — Series of booklets by Hinde & Dauch provides complete information on shipping in corrugated boxes. A must in every shipping department. — HINDE & DAUCH, Sandusky, Ohio.

1122. BALING PRESSES — Bulletins available describing this company's line of motor-driven and hydraulic baling presses for finished-goods, textile fibers, wool, and waste of all kinds. — LOGEMANN BROTHERS CO., 3150 West Burleigh St., Milwaukee, Wisconsin.

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TRADE MARK REGISTERED

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Why pay for liquid oils that drip and spatter—or greases that cause yarn strain from traveler friction on rings? You wind up with broken yarn ends, blackened yarn and lower output.

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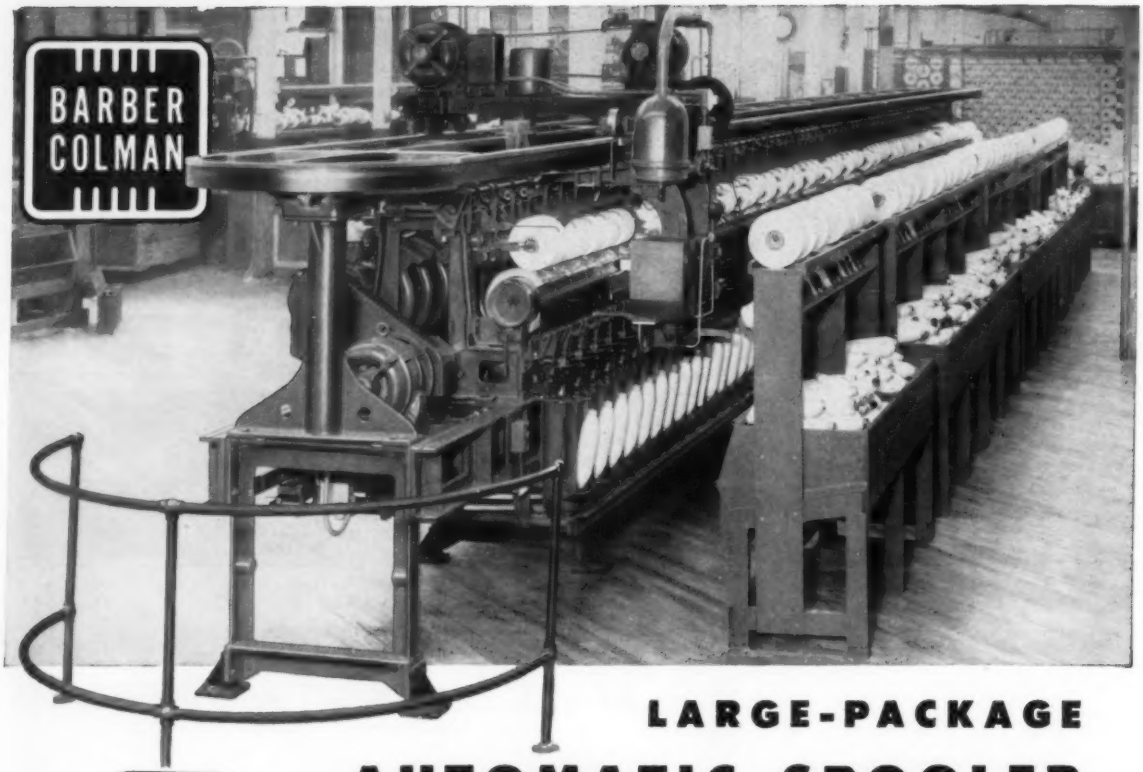
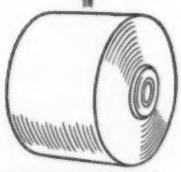


LARGE-PACKAGE AUTOMATIC SPOOLER



LARGE PACKAGES HAVE ADVANTAGES IN THE STEPS THAT FOLLOW SPINNING

The new Type "D" Barber-Colman cheese holds 6½ lbs., which is 120,000 yards of 24s yarn, or 2½ times as much as the standard Type "C" cheese. This gives more slasher beams per cheese, even in the 40"-head size, and thus more loom beams per set. *This increase in loom beams per set, and the consequent reduction in creelings per week, can provide substantial cost reductions in many mills.* Similar advantages are available in the twisting.

In accord with the trend toward larger packages, the new Barber-Colman Type "D" Automatic Spooler offers advantages of special design for greater production and better product. While the machine resembles the familiar Type "C" in general appearance, many details have been changed and improved. These include new methods of handling bobbins, new drive and support for the cheeses, new yarn guides and cleaning devices, new vacuum system, added safety arrangements, new means for by-passing a running thread, and various others. All the way through, this new machine is built to fit the modern methods of up-to-date mills. *Consult your Barber-Colman representative for full details.*

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Personal NOTES ABOUT MEN YOU KNOW

(Continued from page 36)

F. Pulsifer, who succeeds **George Smith,** now superintendent of the cotton mill.

New general manager of Greenwich Printing & Dyeing Co., East Greenwich, R. I., is **Daniel A. Randall,** formerly manager of the Nashville, Tenn., plant of Werthan Bag Corp.

Howard Rollins is now in charge of all manufacturing activity for the Dover Mills at their locations in Shelby, Cherryville, Buffalo, and Boiling Springs, N. C.

Retired at the Revolution Flannel Plant of Cone Mills, Greensboro, N. C., is **William A. Ross,** assistant overseer on first shift in filling card room. * * * Newly named superintendent of Proximity plant is **Frank Starling,** replacing John Scott who retired because of ill health.

William H. Ruffin, president of Erwin Mills, Durham, N. C., was elected an honorary member of the national council, alumni executive body of Duke University. * * * **J. William Wilson** has been appointed division manager of operations at Cooleemee, N. C. He was formerly contact man and in customer service work between the Cheraw and Clemson plants of Delta Finishing Division of J. P. Stevens & Co.

Recently named plant superintendent at D. E. Rhyne Mills, Inc., Lincolnton, N. C., was **Charles W. Sanford,** formerly affiliated with American & Efird Mills and Globe Mills, Mt. Holly, N. C.

Executive changes affecting three mills in the Deering, Milliken group are as follows: **George Asnip,** general manager of the worsted group, has been named treasurer of Abbeville (S. C.) Mills Corp.; **L. J. Fisher, Jr.,** manager of Gerrish Milliken Mill at Pendleton, S. C., has been appointed general manager of Abbeville Mills; **J. H. Cross, Jr.,** head of production and planning for the worsted group, has become assistant general manager of the worsted group, under Mr. Asnip.

Albert E. Herrmann, Jr., manager of the standardization laboratory at General Aniline & Film Corp., Rensselaer, N. Y., has been elected chairman of the Hudson-Mohawk section of the AATCC; **Edward A. Chevrette,** Apex Chemical Co., Albany, vice-chairman; **Maurice Fishman,** Lee Dyeing Co., Johnstown, secretary and **John W. Merrill,** Cluett, Peabody & Co., Troy, treasurer. **William A. Nelson** of the Ritter Chemical Co., Amsterdam, won the Dr. Jack Eppelberg Award for meritorious service during the past year.

Thomas Robson, president of Wayne Knitting Mills, was elected chairman of the board of the National Association of Hosiery Manufacturers, Inc.; **Grayson Harralson** of Princeton Hosiery Mills and **Nathan M. Ayers** of Triangle Hosiery Co., were elected vice-chairmen. Eight of eleven directors re-elected for varying terms are: Standing, left to right, **Chester H. Roth,** president Chester H. Roth Co.; **R. R. Rice,** president Virginia Maid Hosiery Mills; **N. M. Ayers,** president

Triangle Hosiery Co.; **J. L. Tarwater,** president Roane Hosiery, Inc.; **C. W. McCrary,** president McCrary Hosiery Mills. Seated, left to right: **J. H. Millis,** president, Adams - Millis Corp., **R. M. Holt,** president Holt Hosiery Mills; **F. D. MacIver,** president Phoenix Hosiery Co. Directors **J. C. Bolles,** president Chadbourn Gotham, Inc., **Garnett Andrews,** secretary Richmond Hosiery Mills, and **P. G. Menzies,** secretary Southern Hosiery Mills, were not present for the photograph.

J. Fred Corriher was elected president and general manager of Corriher Mills Co., Landis, N. C., succeeding his late father, L. A. Corriher. Replacing Mr. Corriher as secretary is **Carl Alexander. P. K. Dry,** superintendent, was elevated to the position of vice-president in charge of manufacturing, and **Lane C. Dry** was promoted to general superintendent and added to the board of directors.

Cotton Manufacturers Association of Georgia has named new officers to three of its divisions as follows: Per-

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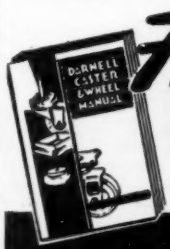
STRING GUARDS . . . Even though string and ravelings may wind around the hub, these string guards insure easy rolling at all times.



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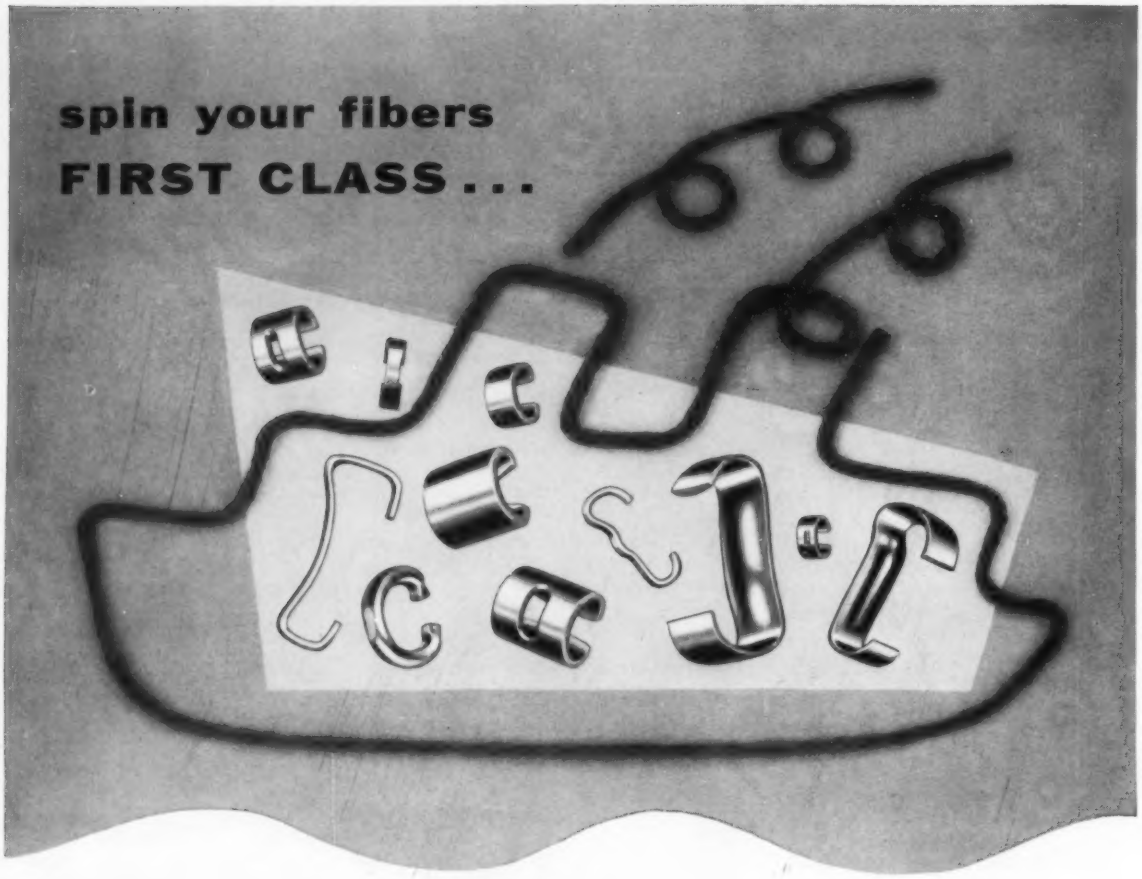

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Personal NOTES ABOUT MEN YOU KNOW

sonnel Managers division: **James E. Boyers,** Thomaston Mills, chairman; **John W. Alexander,** U. S. Rubber Co., Hogansville, vice-chairman. **Frank L. Carter** is secretary of each group. Office Executives Division: **L. C. Cahill,** Coats & Clark, Albany, chairman; **E. A. Rambow,** Clarksville Mill, division of UM & M, vice-chairman. Cotton Buyers Division: **Ferrell T. Towns,** Callaway Mills Co., Pineview Division, LaGrange, chairman; **F. M. Arthur,** Fulton Bag & Cotton Mills, Atlanta, vice-chairman.

Paul M. DeKoning has been made president and general manager of Jantzen, Inc., Portland, Ore. **Mitchel Heinemann** has been promoted to executive vice-president, and **E. C. Klindworth** succeeds A. J. Cormack as manager of foreign plants.

Associate professor **Russell M. Fox,** who has retired after 35 years service in the fabrics department at Lowell (Mass.) Technological Institute, has been named professor emeritus.

Newly elected president of the board of trustees of the Philadelphia Textile Institute Foundation is **Everett L. Kent,** chairman of Kent Manufacturing Co., Clifton Heights, Pa. **Lindsay H. Mason,** Philadelphia

Southern Textile Association's Board of Governors

Officers elected during the Southern Textile Association's recent annual convention in Blowing Rock, N. C., to guide the organization's activities for the ensuing year are pictured here seated on the front row. The entire group constitutes the association's board of governors. In the photo are the following:

First Row (left to right): **Horace Pennington,** Cone Mills Corp., Greensboro, N. C., first vice-president; **W. M. Pittendreigh,** Riegel Textile Corp., Ware Shoals, S. C., president; **James A. Chapman, Jr.,** Inman Mills, Inman, S. C., chairman of the board; and **Walter Vincent,** Dan River Mills, Danville, Va., second vice-president.

Second Row (left to right): **M. L. Brackett,** Highland Park Mfg. Co., Charlotte, N. C.; **Joe N. Jenkins,** Kendall Cotton Mills, Edgefield, S. C.; **W. B. Etters,** Reeves Bros. Inc., Spartanburg, S. C.; **D. A. Purcell,** Fieldcrest Mills Inc., Fieldale, Va.; **Smith Crow,** Erlanger Mills, Inc., Lexington, N. C.; **Herman Cone, Jr.,** Cone Mills Corp., Greensboro, N. C.

Third Row (left to right): **Charles H. Ward,** Highland Cotton Mills, Inc., High Point, N. C.; **D. H. Roberts,** Lydia Cotton Mills, Clinton, S. C.; **R. M. McCrary,** Carolinian Mills, Inc., High Shoals, N. C.; **J. L. Delany,** Joanna Cotton Mills Co., Joanna, S. C.; **T. I. Stafford,** Clifton Mfg. Co., Clifton, S. C.; **J. L. James,** Randolph Mills, Inc., Concord, N. C.; **J. F. Chalmers,** Greenwood Mills, Greenwood, S. C.

Fourth Row (left to right): **James McAden, Jr.,** Clark Publishing Co., Charlotte, N. C.; **Alex Crawford,** Joanna Cotton Mills Co., Joanna, S. C.; **C. S. Willard,** Pacific Mills, Rhodhiss, N. C.; **Lewis W. Thompson,** Riverdale Mills, Enoree, S. C.; **J. P. Carter,** Startex Mills, Startex, S. C.; **E. M. Holt,** Cone Mills Corp., Greensboro, N. C.; **Rodger A. Hughes,** Reeves Bros., Inc., Spartanburg, S. C.

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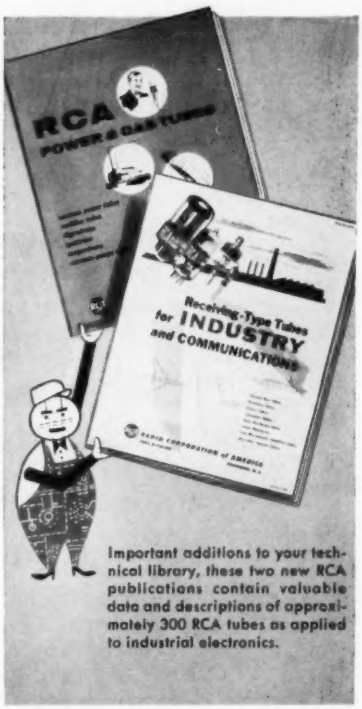

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Receiving-Type Tubes for INDUSTRY and Communications (RIT-104)—New, up-to-the-minute technical information on 126 RCA receiving-type tubes especially suited to industrial electronics. Includes technical data, socket connection diagrams, and descriptions on RCA Special Reds, Premium, computer, pencil, and glow-discharge, small thyratrons, low-microphonic, and other tube types.

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1. ARNEL—the new Celanese ease-of-care triacetate fiber. Contributes great good looks to fabrics, plus machine washability, quick drying, little or no ironing. Fabrics of Arnel have an uncanny ability of resisting wrinkles and maximum shape retention. Used in all ready-to-wear.

2. ACETATE, the beauty fiber—the famous, beautiful fiber used for dress fabrics with elegant good looks. Combines with other fibers, notably cotton, for sportswear and year-round fabrics.

3. CELAPERM, the acetate yarn with "sealed-in" color—the rich, lustrous yarn with color sealed against streaking and washing out. Has captured bathing suit market, is woven with cotton for sportswear and children's clothes.

4. BULKED ACETATE—new bulked filament yarn now available in acetate or Celaperm. Important for new lofted look and dry, crisp hand of apparel and home furnishings fabrics.

5. CRYSTAL YARN—filament acetate yarn with high reflective power. Brilliant sparkle and firm hand make it important in party dresses, decorative fabrics.

6. QUILTICEL—the permanently bonded interlining made entirely of acetate. Does not lose its shape in washing, has warmth of comparable wool interlinings, resists moths and mildew, sews easily. Used in all quilted apparel.

7. FORTISAN—the super-strong rayon with great dimensional stability. Used for home furnishings sheers, and as a strength-giving warp yarn in textured decorative fabrics.

8. FORTISAN-36—a high denier super-strong rayon yarn developed especially for the industrial field, having high tensile strength, dimensional stability, and light weight. Mechanical rubber goods, plastic laminates, paper reinforcements.

9. RAYON—filament yarn, bright and dull luster, and continuous tow.

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CELANESE® CELAPERM® QUILTICEL® ARNEL® FORTISAN® FORTISAN®-36

Dye Works, was named second vice-president.

Lewis Price, formerly general manager of the Pineview Division of Callaway Mills Co. which has now been integrated into the Elmrose and Hillcrest Divisions, now heads the company's recently established centralized purchasing department as vice-president and director of purchases. **Eugene F. Parker,** also of the Pineview Division, is now cotton buyer in charge of purchasing of cotton and other fibers consumed by the company plants. **J. Morgan Jackson,** formerly of the Elmrose Division, is purchasing agent handling equipment and supplies. S. A. T. Newsom has become assistant vice-president at the Hillcrest Division, succeeding **T. B. Kersey** who has retired. Mr. Newsom held a similar position in the Pineview Division. **J. Curtis Amos,** formerly assistant secretary of the Pineview Division, is now in the sales department of the Hillcrest Division. **R. D. Brawner,** formerly assistant treasurer of the Pineview Division, has retired.

Newly named manager of the weaving department of Forstmann Woolen Co. is **Charles C. Manuel, Jr.,** formerly production manager at Edward J. McBride Co., manufacturer of textile machinery. He succeeds Reinhold Lynen, who was named vice-president for production last year.

Allan W. Vint has been elected assistant vice-president and **Lewis R. Briggs** added to the board of American & Efird Mills, Mt. Holly, N. C. Mr. Vint will continue as director of research, and Mr. Briggs continues as vice-president and director of manufacturing.

Berkshire Knitting Mills, Reading, Pa., has named **Frederick I. Rader** assistant to William C. Brenner, vice-president in charge of manufacturing. Formerly superintendent of the finishing department, Mr. Rader is succeeded by **LeRoy K. Luppold.**

George H. Bruton, American & Efird Mills, Inc., Gastonia, N. C., was elected chairman of the cotton buyers and classers division of the North Carolina Textile Manufacturers Association, succeeding Stiles Fifield, Fieldcrest Mills, Inc., Spray. **B. O. Creekmore,** Erwin Mills, Inc., Spray, was named vice-chairman. Named to three-year terms on the executive committee were **J. D. Siewers,** Washington Mills Co., Winston-Salem, and **Fred C. Krueger,** Johnston Mills Co., Charlotte.

Norman E. Elsas has tendered his resignation as vice-president and general manager of the mill division of Fulton Bag & Cotton Mills, Atlanta, Ga. Mr. Elsas is president of the recently chartered Nemo Industries of Atlanta, a medium through which he plans to expand the distribution of several of his inventions, including a novel camera which gives fast, accurate, photographic proof of pick clock, hank clock and other meter readings and also a special machine for the preparation of sizing materials and adhesives.

P. S. Leach was recently named manager of the Lynchburg, Va., division of Consolidated Textile Co., Inc., succeeding the late Henry B. Miller.

Five Anderson (S. C.) textile executives who have been elected to three-year terms on the Board of Directors of the Greater Anderson Community Chest are: **Andrew B. Calhoun,** president of Equinox Mill; **Dan M. Leister,** division manager for J. P. Stevens & Co., Inc.; **Chauncey W. Lever,** director of public relations for Abney and Erwin Mills; **Joe J. Lyons,** executive vice-president of M. Lowenstein & Sons, Inc.; and **Richard W. Muzzy,** plant manager for Owens-Corning Fiberglas Corp.

Personal NOTES ABOUT MEN YOU KNOW

T. H. Hopper, head of the analytical, physical-chemical, and physics section of the Southern Regional Research Laboratory in New Orleans, La., was honored in Washington, D. C., when he received a Superior Service Award from the U. S. Dept. of Agriculture, for his work in organizing and directing research which resulted in the standardization and wide acceptance of instrumental methods for testing cotton.

M. W. Wiesen, Lawtex Corp., Dalton, Ga., was elected president of the Tufted Textile Manufacturers Association, succeeding E. T. Barwick, president of E. T. Barwick Mills, Inc., Chamblee, Ga., who becomes a member of the board. Elected vice-presidents were: **William Sparks,** Sparks, Inc., and Collins and Aikman; **J. Raymond Bates,** J. T. Bates Candlewick Bedspread Co.; **Joseph Dubrof,** Carolyn Chenilles and Sweetwater

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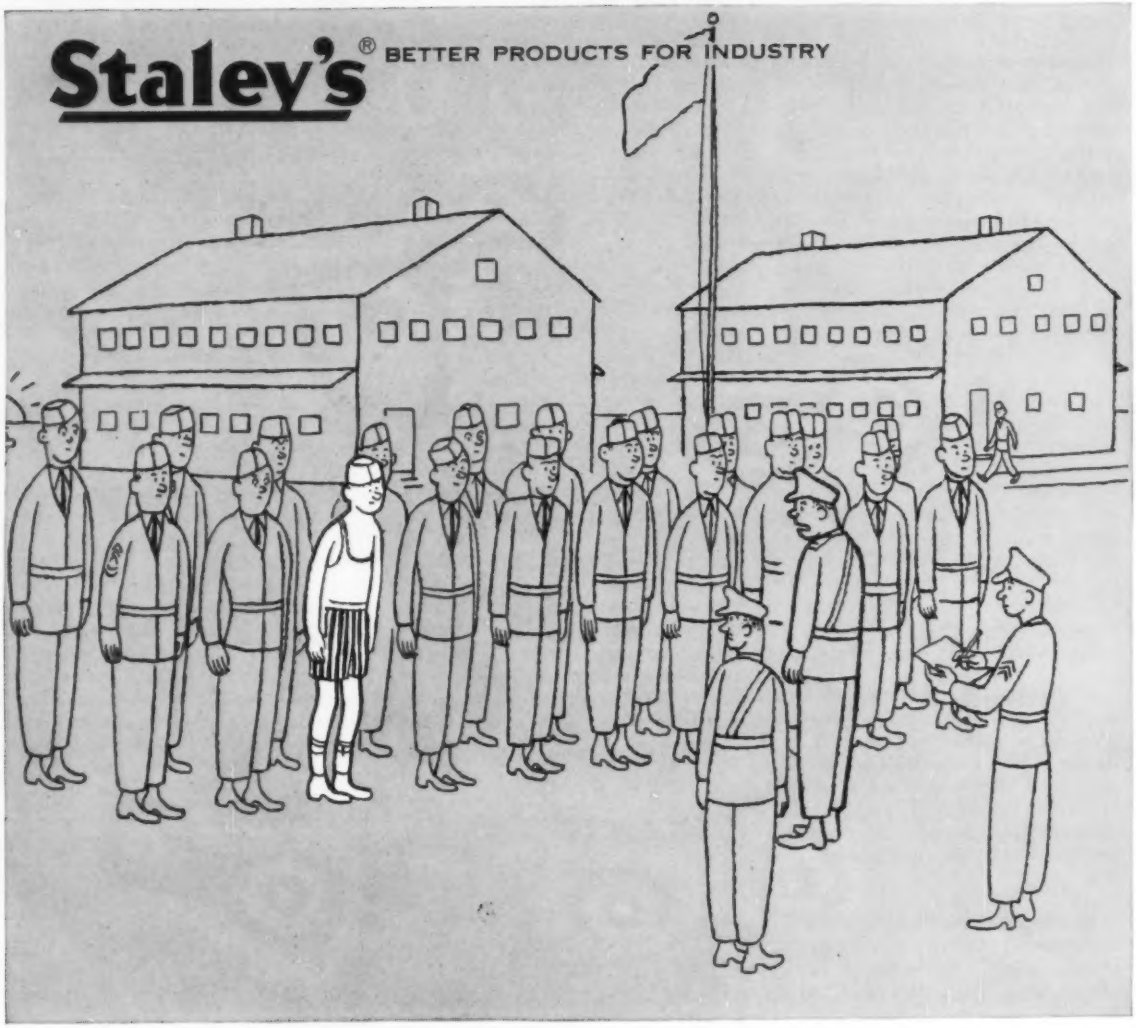

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Obituaries

Roy Cooper Baker, Jr., 48, chief engineer for the P. H. Hanes Knitting Co., Winston-Salem, N. C.

John J. Dinneen, 77, retired manager of the former Utica Knitting Mill No. 5, Sherburne, N. Y.

Joseph B. Ely, 75, last president of the former American Woolen Co.

Maurice O. Guerin, 54, president of River Mills Corp., Fall River, Mass.

S. B. Hammer, 89, retired overseer of the cloth room, Lynchburg (Va.) Division, Consolidated Textile Co.

George Hellwig, 76, retired owner and operator of the Triple H Silk Dyeing Plant.

J. Page Jackson, 27, salesman for Groves Thread Co., Gastonia, N. C.

James R. Lister, 78, retired general manager of the former Walther Manufacturing Co., Philadelphia, Pa.

Wm. H. MacDonald, 69, retired treasurer of the United Piece Dye Works, Lodi, N. J.

Stanley I. Marcus, 28, superintendent at Stanrich Woolen Mills, North Oxford, Mass.

Henry J. Murphy, retired director of the manufacturing and research department of Bibb Manufacturing Co., Columbus, Ga.

Dominick N. Piscitello, 65, president of Reforso Knit Goods Co., Inc., Jersey City, N. J.

Nathaniel Reeves, 73, former official of Osage Manufacturing Co., Bessemer City, N. C.

Joseph A. Simpson, 67, founder and owner of Columbia Silk Throwing Co., Bloomsburg, Pa.

George E. Spofford, Sr., 86, former general manager and treasurer of Bates Manufacturing Co., Lewiston, Maine.

Abe Straus, 71, founder and board chairman of Archer Mills, Inc., Columbus, Ga.

Harold Tyson, 60, foreman for the W. E. Hulton Dyeing Co., Philadelphia, Pa.

Charles E. Ware, Sr., former superintendent of Trenton Mills, Statesville, N. C.

Arthur A. Williams, 78, chairman of the board of the Graton & Knight Co., Worcester, Mass.

Robert C. Williams, 70, retired general manager of Virginia Woolen Co., and Berkeley Woolen Co., Martinsburg, W. Va., and Winchester, Va.

SUPPLIERS News

WHAT THEY ARE DOING

Air Reduction Company, Inc., now occupies the third and fourth floors of the new Socony-Mobil Building in New York City.

The new Cleveland-Rowan plant of **American Moistening Company,** located near Salisbury, N. C., is now in operation.

About forty-five faculty members from ten leading textile schools attended the fourth seminar for textile institute faculties given by **American Viscose Corporation** in June. Covered at the seminar were recent developments in rayon, acetate, and other man-made fibers, as well as new finishing and processing techniques. * * * Thomas M. Smithwick, former representative in Colombia, has been named export manager, succeeding the late John W. Geary, Jr. He will reside in Scarsdale, N. Y. * * * American Viscose and **Burkhart-Schier Chemical Co.** have signed a contract by which Burkart-Schier will manufacture certain Avisco textile chemicals to specification and act as sole selling agent in Ark., Fla., Ga., Ill., Ind., Ky., La., Mich., Minn., Miss., N. C., S. C., Ohio, Tenn., Tex., Va., and W. Va.

Becco Chemical Division of Food Machinery and Chemical Corporation has named Frederick A. Gilbert president, succeeding Dr. Max E. Bretschger, who retired on the 30th anniversary of his association with the company.

Dr. G. H. Law has been appointed vice-president—research, and H. M. West has been appointed manager—textile fibers of **Carbide and Carbon Chemicals Co.**

Celanese Corp. of America has named A. Carl Martin, Jr., staple

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Eagle Welded Steel Bench Oilers are available with 4", 6", 9" or 12" straight or bent-tip steel spouts, or flexible asbestos-lined steel spouts. All spouts are interchangeable.

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Serving Industry Since 1894

products sales manager. Formerly manager of the textile sales development, Mr. Martin in his new capacity, will have charge of sales of acetate and Arnel staple and tow, rayon tow, and spun yarns.

John B. Heil, application engineer of the Atlanta, Ga., office of **Century Electric Co.,** has been assigned to the post of acting district manager at Birmingham, Ala.

Walter H. Hindle, associate director in charge of dyeing and finishing for **The Chemstrand Corp.,** has been promoted to the newly created position of associate director in charge of the textile research divisions. His responsibilities include the over-all direction of the dyeing and finishing and textile processing divisions. * * * Joseph W. Tucker has joined the firm as a senior sales specialist. Formerly with American Cyanamid Co.'s fiber market development department, Mr. Tucker has been assigned to the Acrilan sales group at the New York sales office. * * * John E. Hooke has joined the organization as an Acrilan sales specialist, in the market fabrics division, New York office. Mr. Hooke was formerly associated with Fontaine Converting Works. * * * The Philadelphia district sales office at Ardmore, Pa., has been closed, and the territory will be serviced by the new district sales office in Akron, Ohio. Crawford C. Madeira has been named branch sales manager for the newly formed New York district sales office. G. R. Tait, J. B. Harlow, and J. F. Pate have also been transferred to the sales office in New York City. Frank Wright, Jr., has been assigned to the newly opened Akron district sales office. * * * Chemstrand Limited, a new wholly owned subsidiary, has elected Arvon L. Davies as managing director. Mr. Davies will make his headquarters in London, England. The firm has announced plans to complete in Great Britain in approximately two years, the construction of an Acrilan acrylic fiber plant which will employ an estimated 400 persons. Capacity upon completion is expected to be 10 million pounds per year in the first stage.

Fernand Schlaeppi has been appointed head technician for the New England branch of the **Ciba Company, Inc.** Mr. Schlaeppi had formerly served on the Ciba staff in Montreal and in Basel, Switzerland.

C. I. T. Corporation, industrial financing firm, has announced the formation of a Dallas (Tex.) Division for machinery and equipment financing to textile mills and other industries in the Southwest.

Anticipating the establishment of plant and warehouse facilities to serve the areas of Georgia, Alabama, and Tennessee, **Wica Chemicals, Inc.,** recently employed William B. Amos

Mr. Amos

of Atlanta, Ga., as a sales technician. Mr. Amos has for the past three years been associated with Stein, Hall & Co.

Comer Machinery Co., Inc., of Atlanta, Ga., has affiliated with **Cotton Mill Machinery Co.** of Charlotte, N. C. The new Charlotte operation will be known as Comer Machinery Co.

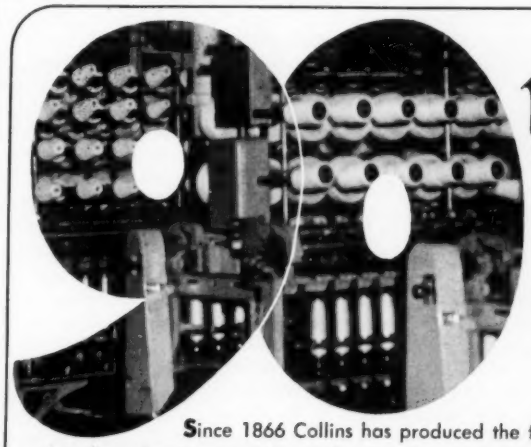
SUPPLIERS News — WHAT THEY ARE DOING

of North Carolina under the direction of Don E. Hamilton, assisted by A. V. Hill who has been transferred from Atlanta.

Open house for employees and friends was held in June at the **Curtis & Marble Machine Co.,** celebrating 125 years of making fabric shearing and other textile machinery.

A quality control laboratory for fabric with a Syl-Mer finish, the **Dow Corning** silicone treatment for decorative and upholstery fabrics, has been established at existing production facilities in Greensboro, N. C.

Edward W. Ward, Jr., formerly sales representative for Milliken woolens in New York and New England territory, has joined the **John L. Stickley Co.,** exclusive sales representatives for the worsted and synthetic sales yarn production of Burlington Industries, Inc., the yarn division of Peerless Woolen Mills of



Years of experience stand behind every COLLINS Twister

Since 1866 Collins has produced the finest and most complete line of twisters on the market for the production of quality yarns at high speeds. The range of Collins Twisters includes Novelty, Ply, Big Ring, Beam, Cabling, Wet, Trap, Rayon, Paper, Glass, Single or Dual-Drive, and Special Twisters.

It will pay you to rely on Collins' long technical experience and to check on the many outstanding features found on Collins Twisters.

For Cotton • Rayon • Nylon • Orlon • Wool • Worsted • Etc.

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There is a Collins Twister for Every Ply Yarn Construction

SUPPLIERS News
WHAT THEY ARE DOING

Rossville, Ga., and other divisions of Burlington. * * * Robert T. Hess is manager of the New York office, replacing Robert E. Lee Pickens who resigned. Mr. Hess has a background of ten years in yarn manufacturing and sales.

Interchemical Corp. has acquired the industrial adhesives business of Angier Products, Inc.

Howard K. Lambert has been appointed district sales manager for the Cleveland office of the **Hobbs Manufacturing Co.**

William B. Wine, vice-president of the transparent packings division of **Lassiter Corp.**, has been appointed sales manager of all southern divisions of the company.

In a realignment of textile chemical sales responsibilities, Leon P. Brick, executive vice-president of **Onyx Oil & Chemical Co.** has been placed in charge of sales, in addition to his regular duties. Other changes in the textile chemical staff include the promotion of Paul D. Jacobs to assistant sales manager of the textile division. Morton Schlesinger succeeds Mr. Jacobs in the research department.

New quarters at 21-31 46th Ave., Long Island City, N. Y., have been opened by the **Dubied Machinery Co.**, American subsidiary of Edouard Dubied & Cie., Neuchatel, Switzerland.

L. O. F. Glass Fibers Company has named Clinton F. Hegg, vice-president, formerly in charge of the automotive sales division, to a post as general sales manager of the company. Mr. Hegg will direct sales activities in the textile mat, automotive, and general products division, from the Toledo office.

A new chemical company, **Lumar Corp.**, with general offices and plant in Cleveland, Tenn., has been formed. William F. Luther, formerly director of research at Dixie Mercerizing Co., is president; and T. J. Marler, Marler Chemical Co., Cleveland, Tenn., is vice-president and treasurer. The new firm will specialize in dry processing chemicals such as fugitive identification tints, anti-static agents, spinning assistants, wax finishes, and winding emulsions.

Mr. Gearing
Allis-Chalmers

Mr. Snyder
Babcock & Wilcox

Charles E. Gearing has been assigned to the Birmingham district office of **Allis-Chalmers Manufacturing Co.**, as a sales representative. Mr. Gearing is a graduate electrical engineer.

The Charlotte, N. C., sub-office of the boiler division of **The Babcock & Wilcox Co.**, has been elevated to full district office status, and Seth M. Snyder has been appointed sales manager of the district. * * * The nation's first privately financed facility for the manufacture and test of peacetime nuclear products has been opened by B&W at Lynchburg, Va.

Appointment of **Whittaker, Clark & Daniels, Inc.**, New York City, as sole distributor of Reckitt's "Seagull" Ultramarines in the United States has been announced. Distribution will embrace the paint, plastic, ceramic, rubber, paper, ink, textile, and other industries where ultramarine blues are used extensively.

Yale materials handling division, **The Yale & Towne Manufacturing Co.** has established the state of Virginia as a separate sales and service territory in order to better serve the industrial lift truck market in the area. The S. L. Cooper Co. has been named representative for the new territory.

Tricoma, Inc., agent for the Samco Super Speed Knitter manufactured by S. A. Monk, Ltd., England, and the Moncenisio 3-feed knitter from Italy, among other foreign knitting machines, has moved into new offices in the Empire State Building. The office will continue to be staffed by Walter W. Glocer and Carl E. Weinberg.

A new sales-service office to service the New England area has been opened in Boston, Mass., by the **Graver Water Conditioning Co.** William A. Homer is district manager.

Mr. Gearhart
Eastman

Mr. McDonald
Emkay

William M. Gearhart, formerly chief chemist in charge of service and development laboratories, has been named manager of the new chemical sales development section of **Eastman Chemical Products, Inc.** R. B. Herring, who served as assistant to Mr. Gearhart, has been promoted to fill the position as chief chemist in charge of the laboratories, under Mr. Gearhart's supervision.

Thomas J. McDonald, formerly technical salesman for Verona Dyestuffs in N. J., and N. Y., has been named New England sales representative for **Emkay Chemical Co.**

Moretex Chemical Products is responsible for final manufacturing, technical service, and sales of commercial quantities of Kylan, trade mark for deacetylated chitin being produced by The Kylan Corp.'s new Brunswick, Ga., plant. A recent patent licensed to Moretex covers the utilization of Kylan for imparting shrink-resistance to wool and wool-containing fabrics.

Commuters and visitors to Grand Central Terminal in New York watched urethane foam being made before their eyes with National Nacconates, products of **National Aniline Division**, Allied Chemical & Dye Corp., when the firm gave lectures and demonstrations 23 times daily as part of an exhibit in the station, in cooperation with an investment company.

Clifford J. Backstrand, president of the **Armstrong Cork Co.**, has been named to represent the textile and chemical products industries on the National Advisory Council for the National Industrial Exposition of new industrial products, methods, and research developments to be held in Detroit in October.

The production capacity of polyvinyl acetate polymers has been doubled at **National Starch Products, Inc.**, new Meredosia, Ill., plant.

Mr. Fox
Arnold-Hoffman

Mr. Terpay
Industrial Rayon

Mr. Breen
Metlon

Mr. Purdy
Harry Miller

Maurice R. Fox, author and vat dyestuff expert, recently on loan from Imperial Chemical Industries, Ltd. of London to **Arnold, Hoffman & Co.**, has been elected an honorary member of Delta Kappa Phi textile fraternity. He was formally initiated at a special meeting of the New Bedford alumni and student chapters of the fraternity.

John M. Terpay has joined the sales staff of the nylon staple division of **Industrial Rayon Corp.** He formerly was laboratory technician in the high polymer research division.

Compagnie Francaise des Matieres Colorantes of Paris, France, has reopened its American branch, **Francolor, Inc.**, at Woonsocket, R. I., headed by Jack H. Firpo. Stocks will be maintained in Boston and Providence.

Warren B. Reese is new vice-president of the **Macbeth Corporation.** Formerly general sales manager, Mr. Reese will continue to direct sales of the firm's industrial color control, illumination, and electronic instruments.

Industrial chemicals division of the **Olin Mathieson Chemical Corp.** has realigned its sales management responsibilities in appointing Kenneth C. Frazier manager, general products sales department; Derek Richardson as manager, and O. J. Theobald, Jr., as assistant manager of field sales activities. Laurence E. Russell heads a separate sales development department; and accounting, treasury, budgets, and financial analysis will be handled by Cecil L. Williamson, manager of administrative services department.

Robinette Research Laboratories, Inc., announces the addition of Joseph Bussian, George Kehl, and Alex Marinelli to its staff of technologists.

Albert R. Breen now represents the **Metlon Corporation** in the sale of its metallic yarns in the midwest, including Ohio, Mich., Ind., Ill., Wis., Minn., Mo., Iowa, and Ky.

Ben Purdy is now representative in the Delaware Valley and surrounding area for the **Harry Miller Corp.**

National Vulcanized Fibre Co. has appointed Samuel Sinclair sales manager of its Lestershire bobbin division. Mr. Sinclair's headquarters will be in Johnson City, N. Y. Named to his former post as district manager of the Newark, N. J., office was Russell S. Davis, Jr., formerly with the New York sales office.

Two new sales representatives have been added to the latex and Lotol department of the **Naugatuck Chemical Division,** U. S. Rubber Co. James T. Fairclough, Jr., formerly a chemist at the Gastonia, N. C., plant, has been assigned to the Georgia area. Robert Dudley, previously a chemist in the company's latex research and development group, will make his headquarters in Philadelphia.

Robert F. Kipp, formerly assistant to the advertising manager, has been named to head sales promotion in the textile industry for **Oakite Products, Inc.**

The Ordnance Gauge Co. recently donated to the Philadelphia Textile Institute an OTA interlock jersey sweater, 10-cut, 20"-diameter, 8-feed machine, which is being used in the PTI knitting lab. The company plans to replace the machine with later models periodically.

Wyandotte Chemicals Corporation has acquired an option to purchase a 700-acre tract of land in Louisiana for the construction of chlorine-caustic soda, ethylene oxide, and ethylene glycol manufacturing facilities. * * * Dr. J. William Zabor has

19th

SOUTHERN TEXTILE EXPOSITION

October 1-5, 1956

Show Hours: 9 A.M. to 6 P.M.

Monday through Friday

TEXTILE HALL
GREENVILLE, S. C.

See on exhibit latest developments in cost cutting, quality building machinery, equipment, supplies, techniques.

Room Reservations should be made in advance to

TEXTILE HALL CORPORATION
GREENVILLE, SOUTH CAROLINA

"An institution of the textile industry since 1915"

SUPPLIERS News
WHAT THEY ARE DOING

been named director of research. He was formerly director of research, activated carbon division of Pittsburgh Coke and Chemical Co.

Square D Co. will construct an electrical equipment assembly plant in Atlanta, Ga., as the base of expanded operations in the southeast United States. Designed to permit future additions, the 31,000-sq ft structure will house regional headquarters offices as well as provide production facilities.

A. Rollin Staley has resigned as vice-president of the **A. E. Staley Manufacturing Co.** He will continue as a member of the board.

Stein, Hall & Co., Inc., has appointed Frank W. Perry manager of its domestic starch department. He will be located in the firm's New York offices.

Vickers, Inc., has named W. F. Driver manager-industrial products sales. He will direct all Vickers industrial oil-hydraulic systems sales activities as well as coordinate engineering, production, and promotional programs relating to this equipment.

Walter L. Hudson has been appointed southern sales manager of the **Victor Ring Traveler Co.,** with headquarters in Gastonia, N. C.

Clifford Petterson has been named sales engineer in the Los Angeles area for the **Warner Electric Brake & Clutch Co.,** with headquarters in Pasadena. * * * John Erbach is new sales engineer for the eastern Wisconsin territory, with headquarters in Milwaukee.

Nemo Industries, Inc., 3133 Maple Drive, N.E., Atlanta, Ga., has been organized for the purpose of marketing several of the inventions of Norman E. Elsas who was formerly one of the owners of Fulton Bag & Cotton Mills of Atlanta. Among them is a novel camera which gives fast, accurate, photographic proof of pick clock, hank clock, and other meter readings; also a special machine for the preparation of sizing materials and adhesives. Mr. Elsas is president of the corporation.

Sun Chemical Corp. announces the appointment of A. L. McArthur, III, to its **Warwick Chemical Co.** division as technical sales representative for

Mr. McArthur

the North Carolina area, headquartering in Greensboro. He will be responsible for the sales of all Warwick textile chemicals.

Proctor & Schwartz, Inc., announces that the first large commercial size Electrocolorset machine for automatically scouring, setting, dyeing, and finishing ladies' nylon hosiery is being delivered and will be in operation this summer. The machine will be used primarily for finishing seamless nylon hosiery, producing 150 dozen pairs per hour and requiring six boarders, two strippers, and one operator-colorist per shift.

Newly appointed assistant manager of Denver laboratories of the **United States Testing Company** is John T. Larsen, who will assist the manager in the processing of large-scale fiber testing and in research in sampling and testing procedures to improve and expedite methods of determining shrinkage and other pertinent factors.

George C. Fryer has joined the sales division of **Pneumafil Corp.** in the position of advertising manager, especially for products designed for the textile industry. He was formerly associated with the Walter J. Klien Co. as art director and production manager.

Polymer Southern, Inc., has named Jared J. Mowry as vice-president. His duties will be to assist in management and in coordination of sales of the firm's chemicals and adhesives in the southern and eastern territories.

General Plastics Corp. has completed installation of a large baking oven for applying Teflon coatings on textile equipment. According to the firm, the installation was made possible because of the development by their engineers of techniques for applying coatings to prevent buildup on the surfaces of textile drying cans and slashing cylinders.

Dr. Howard O. McMahon, science director of **Arthur D. Little, Inc.,** has been elected vice-president of the firm.

E. F. Drew & Co., Inc., announces the appointment of Torben E. Neesby as technical director of its textile chemical department.

The Current Story of Stretch Yarns

(Continued from page 93)

siery utilizing 7-, 10-, and 15-denier monofilament yarns; and dual-torque yarns with both S and Z twist in one yarn, now being used in seamless hosiery.

The U. S. market for all stretch yarns is figured at 17 to 20 million pounds of multifilament annually, with another 2 or 3 million pounds of monofilament.

By 1960 it is estimated that the market for bulk yarn will be between 25 and 50 million pounds annually.

Today there are perhaps 75 major concerns manufacturing stretch and bulk yarns. Sweaters, dress goods, rugs, and many more applications are being developed by these companies and their customers. Practically every major fiber manufacturer also has a stretch or bulk process, or both.

Consider the fact that we are at present working with only the "expensive" fibers, which make up about 5 per cent of all textiles, and that we are using only a small part of that. The other 95 per cent is there, and I believe that the stretch and bulk principles will capture a good part of that market.

What the TEXTILE MILLS are doing

Abney Mills expect to complete in September, 1956, construction of a 150,000 sq ft warehouse in Greenwood, S. C., with storage capacity for 35,000 to 40,000 bales of cotton and rayon. It will be available for use by all of the Abney Mills plants in South Carolina.

American Felt Co., Glenville, Conn., has perfected an improved technique of mechanically interlocking synthetic fibers of all types to produce felt-like structures, making possible the production of industrial fabrics possessing all of the desirable three-dimensional physical characteristics of wool felt plus the desirable chemical and thermal properties possessed by man-made fibers. The new fiber felts are being produced at the Westerly, R. I., plant.

The Raeford (N. C.) Division wool mill and the Clarksville (Va.) Division wool fabric finishing plant of **Amerotron Corp.** have been acquired by **Pacific Mills,** a member company of Burlington Industries.

To produce more and larger felts for the paper industry **Appleton (Wis.) Woolen Mills** recently installed the following new equipment: a 600" loom which permits the manufacture of felts up to 300" wide; a picker-feeder to assure more accurate and uniform blends of wool and synthetic fibers; a 10' stainless steel washer to augment the fulling department's output and to permit more chemical felt treatments; a 300" napper and 320" dryer. According to the company, the equipment also opens the way to more uniform control of quality and accelerates delivery time.

To simplify the corporate structure and effect economies, **North Carolina Finishing Co.,** Yadkin, N. C., was merged with **Erlanger Mills Corp.,** Wilmington, Del. The Yadkin plant will continue to operate under the name of North Carolina Finishing Co., and there will be no change in directors, officers, or management. * * * New equipment ordered by Alexander Mills Division of North Carolina Finishing includes six 12" x 6½" x 10" roving frames with 96 spindles each and changeover material to apply long draft to 79 spinning frames.

Augusta Knitting Corp., Utica, N. Y., has opened a pilot plant in Lumberton, N. C., for the manufacture of knitwear for men and women. Establishment of a full-scale operation in Lumberton for the manufacture of underwear, sleepwear, and sportswear is planned by the company if it is found that labor is readily available.

At the Haynsworth Plant of **Woodside Mills,** Anderson, S. C., a fishing club, with more than 92 charter members, has been organized. Among the first activities of the club will be a fishing contest through the summer and fall with prizes to be awarded for the best fish in different classifications.

Bassett-Walker Knitting Co. plans as an addition to its facilities at Bassett, Va., the construction of a three-story, 50,000 sq ft building.

A hundred looms and supplementary equipment of the Rockingham, N. C., plant of **Beaunit Mills** have been transferred to the Statesville, N. C., plant, and about 240 looms and supplementary equipment have been transferred from Rockingham to Statesville. The exchange in equipment was intended to effect greater efficiency of operation for the whole mill company, and was designed so that employees would have greater assurance of continued employment.

Belmont (N. C.) Throwing Corp. has completed an extensive modernization program which included the installation of new equipment to handle all types of twisting and winding of fine and coarse yarns.

Berkshire Hathaway, Inc., Providence, R. I., has purchased the

HOW ANDERSON SHIELDS INCREASE SPINNING ROOM EFFICIENCY

Spinning rooms using Anderson Shields save time and money, and prevent disruption when unnecessary breaking, chipping, and splitting of bobbins and spools is avoided. In a year's time these items alone can amount to a surprising sum . . . Insist on Anderson and get the best protection metal shields afford . . . Watch your spinning room efficiency increase!

TEXTILE SHIELD CO., INC.

Metal Protection for Wood Turnings

J. N. ANDERSON, Treas.

LAWRENCE, MASS., U.S.A.

What the TEXTILE MILLS are doing

Bourne Mills, Fall River, Mass., and its subsidiary, the **Swansea (Mass.) Print Works.**

A centralized purchasing department has been established by **Callaway Mills Co.,** LaGrange, Ga., to handle all purchasing for the company and its plants, including the buying of cotton and other raw materials as well as equipment and supplies. Temporarily located in the building on Hines Street which has been occupied by the Pineview Division office, the purchasing department will at an early date be transferred to the company's general office building. * * * The company's Pineview Division has been integrated into the Elmrose and Hillcrest Divisions, with the Manchester plant being transferred to the Hillcrest Division and the Milstead plant to the Elmrose Division. * * * On June 4 the Callaway recreation center, with the recently completed addition, was officially opened. Among the new facilities which have been added around the spacious swimming pool are modern bath house, a pavilion, enlarged concrete decks covered with open patios, and a modern air-conditioned restaurant.

Camperdown Co., Inc., Greenville, S. C., has announced plans to discontinue operation for the reason that the mill cannot sell its products because of Japanese competition.

Ernest Koury, Maurice Koury, and Clary Holt, all of Burlington, N. C., have formed a new corporation, **Carolina Hosiery Mills, Inc.,** in Burlington.

Establishment of The Herman Cone Memorial Scholarships, to be awarded to three outstanding students in the School of Textiles at North Carolina State College, has been announced by Mrs. Herman Cone of Greensboro, N. C., president of The Herman Cone Family Foundation, Inc. Consisting of three annual awards of $500 each, the scholarships, which are named for the late head of **Cone Mills Corp.,** will be given to a sophomore, a junior, and a senior. All recipients must be N. C. natives, and winners will be chosen by the college's textile scholarship committee on the basis of scholastic achievement, character, and need.

The Martinsville, Va., plant of **Consolidated Textile Co., Inc.,** is to be liquidated. It is expected that all orders will be completed and the plant closed by August 15, 1956. * * * The company has also announced that the Windsor Print Works Division in North Adams, Mass., is to be closed "because of Japanese competition."

At the Fletcher (N. C.) Division of the **Cranston (R. I.) Print Works Co.** a fishing club has been formed with a membership of 82. Three prizes will be awarded in each of nine classes of fish, and an additional prize will be awarded the female who catches the largest fish regardless of the class.

Dan River Mills, Inc., Danville, Va., has purchased from Ely & Walker Dry Goods Co., St. Louis, the latter's 16 per cent interest in **Woodside Mills,** Greenville, S. C.

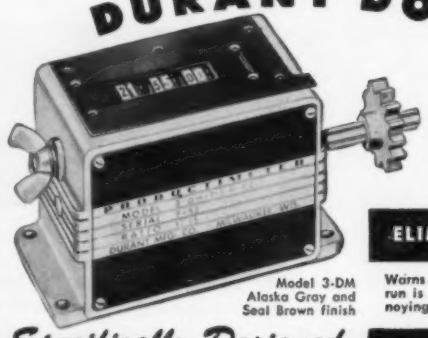
In line with consolidation plans, the Lincolnton (N. C.) division of **Duplan Corp.,** will be permanently closed after present operations have been transferred to other throwing plants of the company. The building is being offered for sale.

The Duro Finishing Corp., Fall River, Mass., has acquired all of the capital stock of **Sovelco Mills, Inc.,** dyeing, bleaching and finishing plant of Winston-Salem, N. C. New officers of the company are Edward W. Ricci, president; Leo Goldberg, treasurer; and Louis A. Horvitz, secretary.

All employees of the Durham, N. C., plants of **Erwin Mills, Inc.,** were guests of the company in June for a Brunswick stew on the lawn of the home of the manager of the Durham operation, M. M. Payne. The stew was personally prepared by Eddie W. Seigler, vice-president and general manager.

Chadbourn Gotham, Inc., has announced plans to suspend operations at the former Gotham Hosiery Co. leased plant in Meridian, Miss., and the full-fashioned knitting equipment will be transferred to two of the company's wholly-owned plants. The move is the final step in consolidation of facilities acquired when Gotham Hosiery Co. was merged

DURANT DOFFMETER



Model 3-DM
Alaska Gray and
Seal Brown finish

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The Durant Doffmeter is a compact, predetermined counter designed to cut off the loom or signal when the preset number of yards is reached. Eliminates cut marks and waste ends by assuring uniform yardage . . . simplifies inventory control.
Present day high costs make the installation of Durant Doffmeters on every loom a practical money saving investment. Plan now . . . write or contact us for detailed information.

ELIMINATE OVERRUNS
Warns operator or stops machine when run is completed. Yes — eliminates annoying underruns, too!

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Easy, accurate way to assure uniformity in lengths of cloth or yarn.

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A Durant Doffmeter takes the responsibility — operator can do other work.

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PRODUCTIMETERS
SINCE 1879 *Count Everything*

with Chadbourn Hosiery Mills, Inc., Charlotte, N. C.

The **J. Milton Hagy Waste Works,** Philadelphia, Pa., has purchased **Lowndes Products, Inc.,** of Greenville, S. C., manufacturer of nonwoven fabrics. The main office is at 4946 Parkside Avenue, Philadelphia.

Tufted bath mats and decorative area rugs are being manufactured by a new firm known as **Hampton Mills, Inc.,** Ellijay, Ga. New tufting machinery has been installed in a two-story building containing 10,000 sq ft of floor space, and the company employs about 50 operatives. Officers are Hayden Hampton, president, and James Tankersly, vice-president.

Upon completion of an addition now under construction at **Hayward Woolen Co.,** East Douglas, Mass., dry finishing and shipping can be done in the same department.

Merino Wool Corporation, Boston, Mass., has purchased the Kamaknit Division of **Kanmak Mills, Inc.,** Kulpmont, Pa. For the present the operation will remain in Kanmak's headquarters under the same name. Merino took over the operation, personnel, and inventory of Kamaknit, and production continues on a commission basis.

Northern Dyeing Corp., Washington, N. J., has announced availability of a new finish for peau de soie which makes this fabric washable. It is expected that the finish, known as "Redi-Set-P," will greatly increase demand for peau de soie and expand its application into hitherto untapped resources in the garment industry. When treated with Northern Dyeing's new finish, the fabric has a maximum 3% residual shrinkage and is completely washable in temperatures of 150 F.

On June 15 a group of industrialists, including Julius W. Abernethy of Newton, N. C., Moses Richter of Mt. Gilead, N. C., and A. A. Shuford, Jr., of Hickory, N. C., purchased stock control of **Fulton Bag & Cotton Mills,** Atlanta, Ga. Speaking of the change in ownership, Mr. Abernethy, who is chairman of the new board of directors, pointed out that the new owners were primarily investors in the company and will lend the experience they gained in operating many other successful businesses. First action of the board was to re-elect the majority of the officers of the old company to their former positions. Robert O. Arnold is president; Jason M. Elsas, vice-president and general manager, bag division; Norman E. Elsas, vice-president and general manager, mill division; and Clarence E. Elsas, vice-president and general manager, fabrics division. * * * Fulton Bag has been selected as "Plant of the Year" in occupational vision by the Occupational Vision Institute of the Georgia Optometric Association. Shown here accepting the

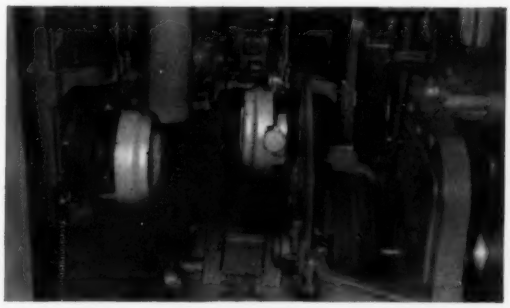
plaque in behalf of the company is Ernest W. Howard (right), industrial relations director. Felton Gordon, public relations counsel, presents the award on behalf of the Institute.

Controlling stock interest in the **Lehigh Spinning Co.,** Allentown, has been purchased by Walter R. Guthrie, operating head, and Warren W. York and Co., Allentown investment firm. Sellers were Victor R. Schmidt and Frank H. Schmidt. The sale severs all connection between Kramer Textile Co., which is still owned by Victor R. and Frank H. Schmidt. It was also made known that Lehigh has entered into an agreement for the purchase of the property in which it now operates at South Carlisle and Fairview Streets. The property is owned by the Queen City Textile Corp. Mr. Guthrie stated that the change in control will not affect operation of the company and that the new management expects to make capital expenditures that will greatly increase production.

Oxford (N. J.) Textile Finishing Co. is now wholly owned by Joseph Knapik and J. Gambino.

A newcomer to the dyeing and finishing field is the **Pioneer Valley Finishing Corp.,** Holyoke, Mass., which will soon begin operations in a 22,000 sq ft plant area that was for-

3 times



the Flywheel effect in half the space

Notice in this illustration how the compact Fairbanks-Morse axial air gap motor is ideally suited to spinning frame drive. But in addition to important space saving, the axial air gap motor gives you three times the flywheel effect of the conventional motor.

This larger flywheel effect plus extremely smooth torque acceleration gives smooth starting and smoother operation of the driven machine—resulting in better quality of material produced.

To get the full story of performance on this Fairbanks-Morse spinning frame motor, write Dept. TI-8, Fairbanks, Morse & Co., Chicago 5, Illinois, or 760 Lee St., S.W., Atlanta 3, Ga.

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Superintendent of yarn mill desires to make change (would consider foreign plant). Cotton, synthetic and wool blends experience, quality, cost and production conscious, good personal relations, practical. Married, age forty-six, presently employed. Reply to Box 764, TEXTILE INDUSTRIES, 806 Peachtree St., N.E., Atlanta 8, Ga.

What the TEXTILE MILLS are doing

merly a unit of Farr Alpaca. Joseph B. Cowett, of Springfield, Mass., is president of the new corporation, and Mrs. Pearl L. Wallace is treasurer-clerk.

The **McKinney Carpet Co., Inc.,** of Dalton, Ga., has been purchased by the **Mylu Corp.** of Cartersville. W. C. McKinney, former owner, has joined Mylu as executive vice-president and divides his time between the two plants.

Progressive Knitting Mills, Philadelphia, Pa., have moved their plant from 12th & Carpenter Streets to larger and more modern quarters at 19th St. and Allegheny Ave.

Schwarzenbach Huber Co. has taken over 52,000 sq ft of the former Queen City Textile Corp. in Allentown, Pa. Products from the firm's mills in Altoona, Pa., and Luray and Front Royal, Va., will be assembled in the Allentown plant for shipping. Plant superintendent is E. C. Utley.

On June 4 **J. P. Stevens & Co., Inc.,** held open house at its new Nathaniel plant in Dublin, Ga. John P. Baum, vice-president and director in charge of the woolen and worsted division of the company, presided, and Thomas D. Bruce, manager of the Dublin and Nathaniel plants, welcomed the guests. Fancy stock-dyed apparel woolens are being manufactured in this 220,000 sq ft mill which is a complete unit entirely separate from the Dublin plant where piece-dyed woolens are produced. * * * At the Milledgeville plant a three-day wool market was held in June with more than 100,000 pounds of fleece being procured. * * * Arrangements have been made for the sale of the Stevens-owned **Cheney Bros.** of Manchester, Conn., to **La France Industries.**

A modernization program which will extend over a period of about two years has been instituted at the Peerless Division of **Thomaston (Ga.) Mills.** First on the schedule is construction of a three-story addition which will extend approximately 150 feet; contracts for this have already been awarded.

Orlon is dyed in tow form at **Tow Dyeing Corp.,** a recently established plant located at 3325 Braddock St. in Philadelphia, Pa.

The four-story, 50,000 sq ft building at 133 W. Berkley St. in Philadelphia, Pa., which was formerly occupied by NoMend Hosiery Mills, has been acquired by **Union Knitting Mills** and now houses the company's operation, the equipment having already been moved from Union's Third Street location. A considerable increase of production is planned.

An Executive Views the News

(Continued from page 87)

who is responsible. Therefore, they are talking in terms of letting the buyer of grey goods trade on the basis that some tar will be in the cloth, and then trade with the finisher on the basis of getting it out.

Tar spots can be *reduced* by the mill in several ways, all of which cost money—but tar spots can't be *eliminated* in grey goods if tar is in the cotton. The mill men feel that if the goods are to be bleached so that the tar spots show up in the cloth, then the buyer should let the finishing company treat the goods to get the tar out.

The mill men are fed up with buyers taking cloth with tar spots in it when cloth is hard to get, and then discovering tar spots in cloth when cloth is easy to get and the market is declining.

They feel that an occasional tar spot goes with the cloth, just as does an occasional mispick or nep.

And while all the tar-spot-in-cotton discussion is going on, and meetings are held on tar spots, and the mills are losing money on tar spots, and tar spots get in the cotton at the farm, and tar spots get on cotton because it is not properly protected in transit—

—The people who make synthetic fiber quietly go about their business of producing a clean fiber, wrapping it neatly in a protective cover, and delivering it to the mills without fuss or fanfare or contamination.

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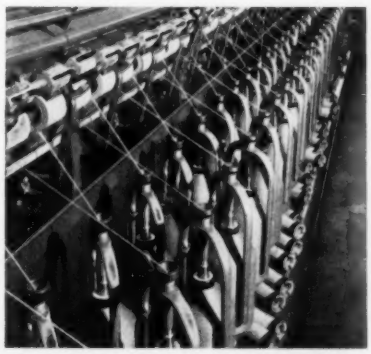

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AMCO Humidification System installed at Caron Spinning Company, Robesonia, Pa. The highly sensitive AMCO Cyclestat Control holds humidity within narrow limits.

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When you think of air conditioning, remember that AMCO offers systems and equipment for every manufacturing requirement and every climatic condition. There are four different types of AMCO systems, alone or in combination: humidification, evaporative cooling, unit dry-duct, or central station air conditioning. And because AMCO engineers have these four basic systems — plus all associated equipment and controls — they are able to offer you unbiased advice on the *best* system for your particular need.

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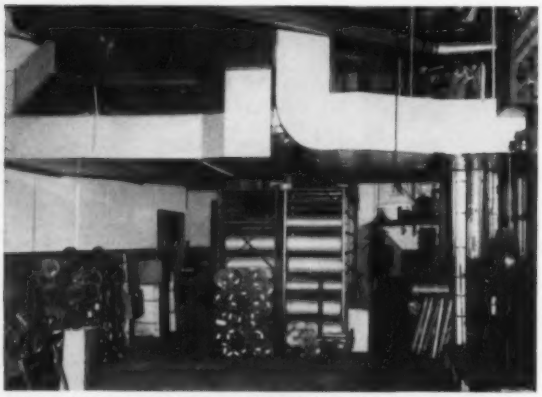
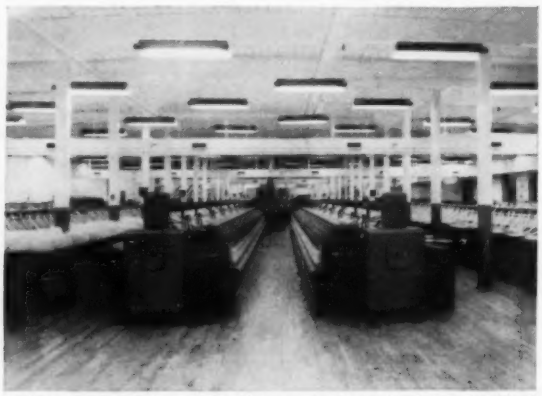
AMCO Evaporative Cooling System in Texas Textile Mills, McKinney, Texas. Note window units which control mixture of fresh and recirculated air.



AMCO Unit Dry-Duct System at The Windsor Manufacturing Company, Philadelphia, Pa. The entire unit is installed overhead out of the way.



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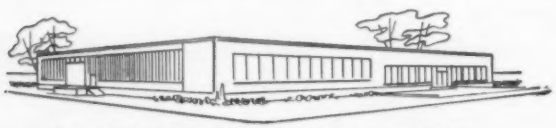

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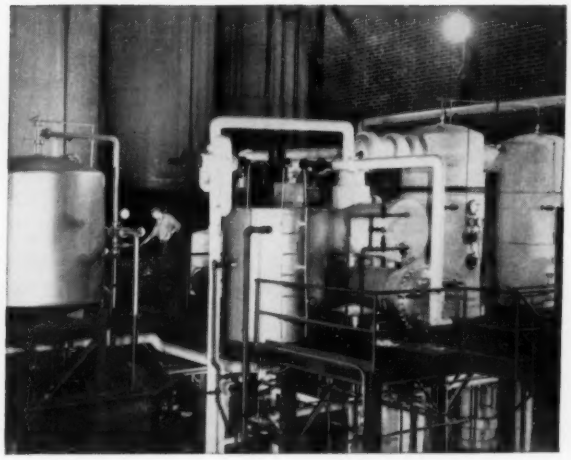

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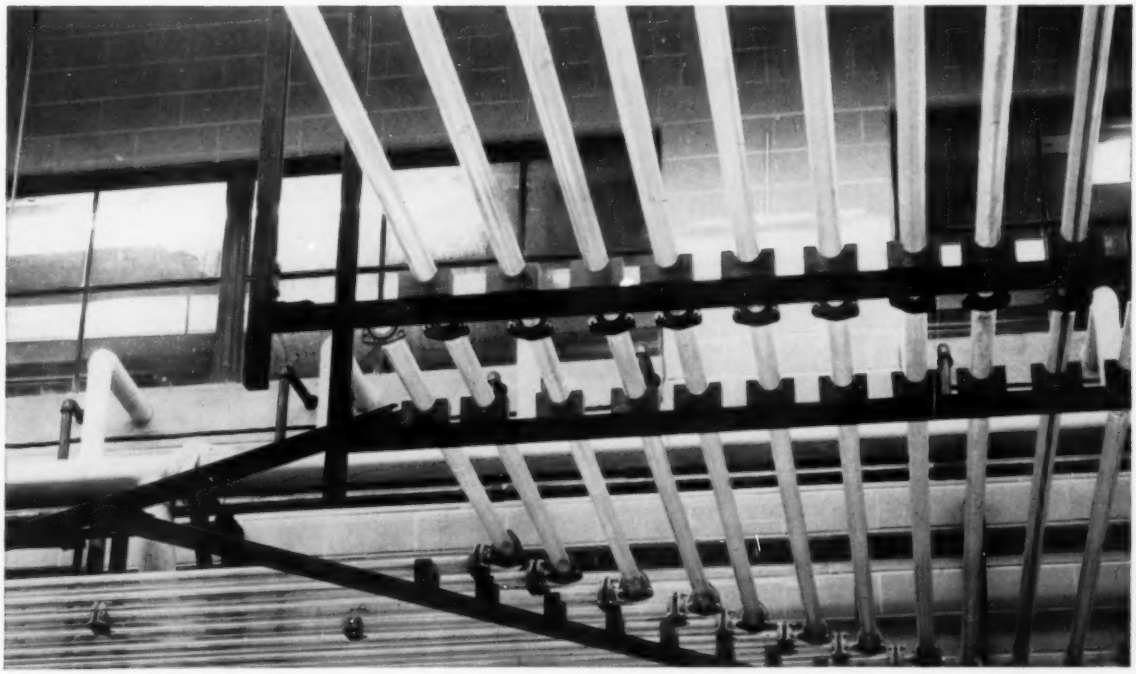

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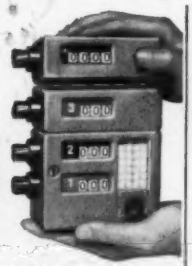

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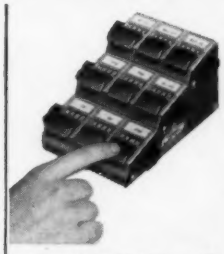

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